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BEETLES of NEW ENGLAND

By E. KNOBEL

BRADLEE WHIDDEN, PUBLISHER

BEETLES OF NEW ENGLAND

AND THEIR KIND

78978

A GUIDE TO KNOW THEM READILY

BY EDWARD KNOBEL.

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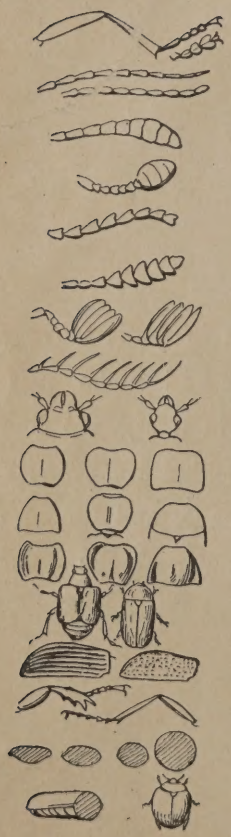
COLEOPTERA. (BEETLES.)

THE beetles are biting insects, provided with two pairs of jaws, moving sidewise. They have two pairs of wings, an upper and under pair. The upper pair are horny cases or shells meeting in a straight line on the top of the back; the under pair are filmy and folded transversely when not in flight. The young of beetles are grubs (*larvæ*), and undergo a complete transformation in coming to maturity. The name of the order *Coleoptera* signifies wings in a sheath.



IN LOOKING AT YOUR BEETLE, OBSERVE:

how many joints (tarsi) in the feet.

the feelers; if hair-like or string-like.

if club-shaped.

if knob-shaped.

if saw-like or comb-like.

if club-saw-shaped.

if a knob of separate leaves.

if feather-like.

the head; if large or small, if narrowed to the neck or not.

the chest (thorax); if round, heart-shaped, or square.

if narrowed to the neck, or waists, or joins even to the wings.

if the edges are turned upwards on the sides, on forward or hind angle.

the upper wings (elytra); if short, not covering part of body.

if smooth or rough, ribbed or dotted.

the legs; if long and slender, medium or short, or if thorny.

the section of body; if flat, slightly convex, or convex.

if the shape is cylindrical, or globular, if pointed or rounded behind.

KEY TO THE BEETLES.

Feet of 5 joints; feeler composed of beadlike joints, hair or bristle-shaped, not thicker on end;
head as wide or wider than chest, neck broad, section of body cylindrical . . . . *Tiger Beetles* 1*a*
head narrower than chest, or neck slender
wing 3 times the length of chest; chest as wide or nearly as wide as one wing . . *Ground Beetles* 1*b*
chest wider than one wing . . . . . " " 1*c*
wing 2½ times the length of chest, chest as wide as both wings . . . . . " " 1*d*
wing twice the length of chest . . . . . " " 1*e*
swimming legs; feeler slender, or short stumps . . . . . *Water Beetles* 2
wings short, not covering half of body . . . . . *Rove Beetles* 3
feeler club-shaped; swimming legs . . . . . *Water Beetles* 2
short walking legs . . . . . *Bacon, Fur, and Wool Beetles* 6
feeler saw or comb-like; wing hard, irregularly grooved like a plum stone . . . . . *Bright Borer Beetles* 7
wing hard, smooth, or finely ribbed . . . . . *Snapping Beetles* 8
wing soft, leather-like . . . . . *Lightning Beetles* 9
feeler knob or club-saw-shaped, sometimes feather-like; body cylindrical . . . . . *Flower Beetles* 10
body broad, section slightly convex, or convex . . . . . *Sexton Beetles* 4
body oblong oval, section slightly convex, or flat . . . . . *Flower and Moss Beetles* 5
feeler a knob of book-like leaves which open and shut;
elbowed, knob loose, section of body slightly convex . . . . . *Stag Beetles* 11
head and chest nearly as long as body part . . . . . *Tumble and Dung Beetles* 12
body part longer than chest and head . . . . . *June Bugs* 13

Feet of 5 joints in forward legs, 4 joints in hind legs;
feeler club-saw-shaped; chest square, wider than head at the neck . . . . . *Meal Worms* 14
feeler string or saw like, sometimes feather-like; chest as wide as head at neck . . . . . *Bark Beetles* 15, 16
chest constricted to a narrow neck . . . . *Bark and Blister Beetles* 16, 17

Feet of 4 joints; feeler long, string-like or tapering, its second joint very short; body flat or slightly convex . . . . . *Buck Beetles* 18*a*
body cylindrical, short neck . . . . . " " 18*b*
long neck, wings tapering behind " " 18*c*
neck as wide as head and chest " " 18*d*
feeler club-shaped, mostly elbowed; long, beak-like snouts . . . . . *Fruit Stingers* 19
feeler knob-shaped; chest part large, body cylindrical . . . . . *Bark Borers* 20
feeler various shaped, mostly short; chest part small, body convex, flat below (sometimes cylindrical) . . *Leaf Eaters* 21
body flat . . . . . *Moss Beetles* 22

Feet of 3 joints; body convex, flat below (sometimes slightly convex) . . . . . *Lady Birds* 23

TO USE THE KEY.

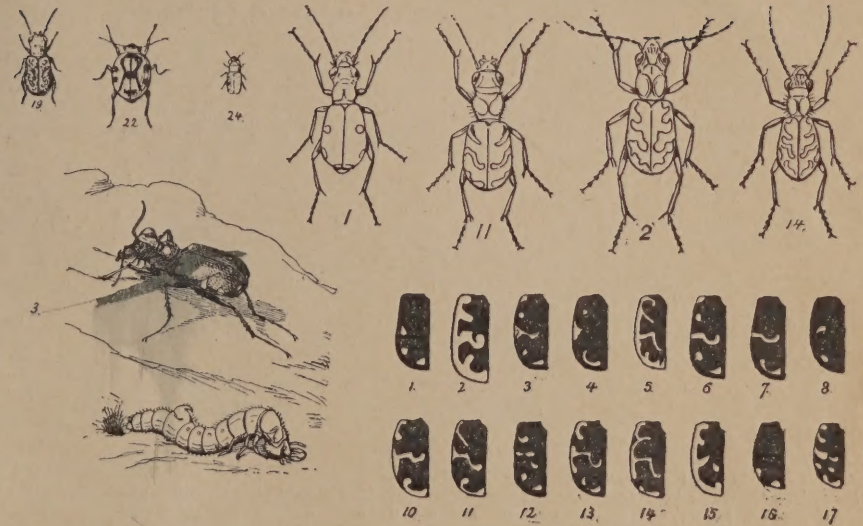
IN using the Key of this book to find the name of a beetle, proceed as follows: First, count the number of joints in the beetle's feet, then observe the kind of feeler it has; this, with a few easily noticed peculiarities, will readily lead the observer to a number which accords with a set of drawings of beetles in the book. If the beetle has any peculiar mark it will be found represented in the group. If, however, the beetle is plain colored and cannot be found in the group, notice the number of that beetle represented which resembles most closely your specimen in shape, irrespective of size and marks. A comparison of the size and color of your specimen with those named a few lines above or below your noticed number will disclose the sought-for beetle. The above method will suffice in most cases. Some families are, however, large, and the members of it do not noticeably differ from each other in shape, color, or size; then the beetles cannot be so easily identified. More minute descriptions, fine instruments, and a more careful study are demanded than the average amateur is likely to give the subject. Hence, in these more finely distinguished cases only a few names are mentioned and the rest omitted. For similar reasons most beetles less than one eighth of an inch in length have been omitted, and only those that are injurious or in some way remarkable are described. The drawings of the small beetles are in most cases enlarged.

1*a*. TIGER, SAND, GROUND BEETLES. RUNNERS.

The **Cicindelidæ** and **Carabidæ** represent the animals of prey among beetles. They are all sharp biters, fierce fighters, and swift runners, some are excellent flyers. Their grubs even grasp any insect which comes within their reach, pulling it into their retreat to devour it.

The **Cicindelidæ** are met hunting in roads or sandy places, in broad daylight.

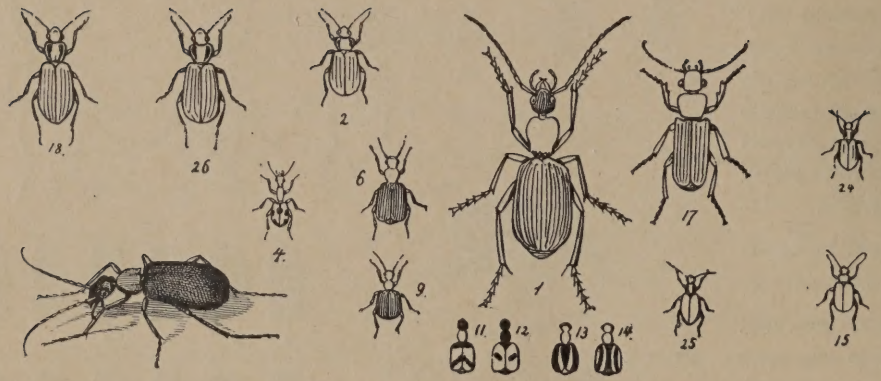
The **Carabidæ** creep under stones, bark, or in the grass, while some even climb trees hunting for other insects or their grubs.



1. *Cicindela sexguttata;* ¼ in.; bright green-gold, cream-colored marks.
2. " *generosa;* ¾ in.; dark " " " " " "
3. " *patruela;* ½ in.; green-gold, with cream-colored marks.
4. " *rufifrons;* ½ in.; " " " " " "
5. " *puritans;* ⅝ in.; dark green-gold, " " "
6. " *limbalis;* ⅝ in.; red-copper bronze, " " "
7. " *purpurea;* ⅝ in.; " " " " " "
8. " *longilabris;* ½ in.; brown, " " "
9. " *modesta;* ½ in.; " " " "
10. *Cicindela ancorisconensis;* ½ in.; dark brown, cream-colored marks.
11. " *vulgaris;* ½ in.; gray-brown, with cream-colored marks.
12. " *12 guttata;* ½ in.; dark brown " " " "
13. " *repanda;* 7/16 in.; dark purple-brown, cream-colored marks.
14. " *hirticollis;* ½ in.; dark brown, marks tan colored.
15. " *marginata;* 7/16 in.; " " " " "
16. " *punctulata;* ⅜ in.; dark bronze, light dots.
17. " *Hentzii;* ⅝ in.; dark brown, buff marks.
18. " *dorsalis;* ½ in.; cream colored, with dark brown marks.

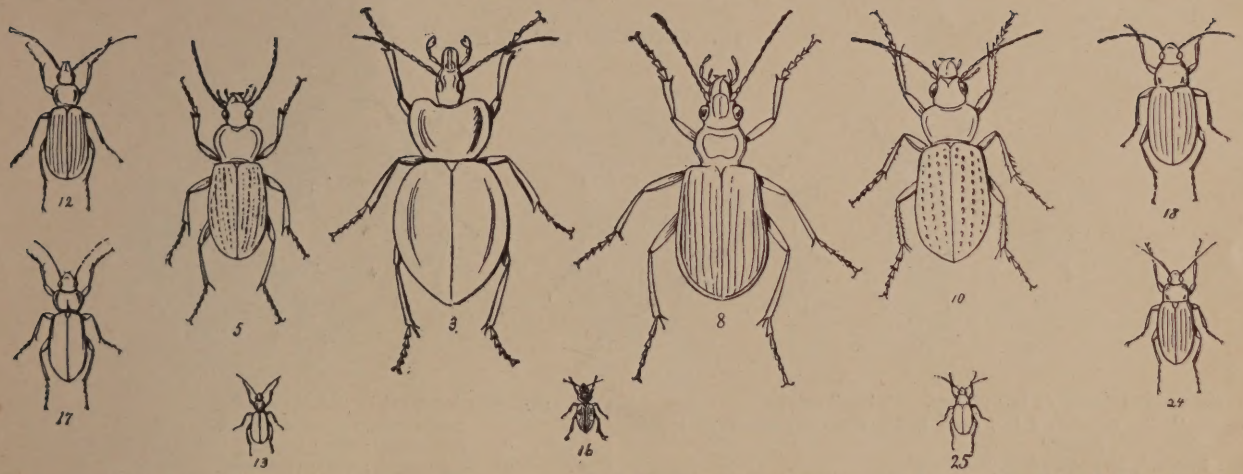
19. *Elaphrus clairvillei;* ¼ in.; dark brown, wings rough, short legs.
20. " *cicatricosus;* ¼ in.; " " " " " "
21. " *riparius;* ¼ in.; " " " " " "
22. *Omophron tessellatum;* ¼ in.; light chestnut-brown, with dark marks.
23. " *Americanum;* ¼ in.; like last, darker, marks indistinct.
24. *Notiophilus sylvaticus;* ⅛ in.; brown.
25. " *æneus;* ⅛ in.; brown.
26. " *semistriatus;* ⅛ in.; black.
27. " *sibiricus;* ⅛ in.; blue-black.
28. " *Hardyi;* ⅛ in.; bronze-brown.

1b. GROUND BEETLES.



1. *Galerita Janus*; 1 in.; black, chest and legs orange-red.
2. *Pinacodera limbata*; $\frac{3}{8}$ in.; brown, with edge of chest and legs orange.
3. " *platicollis*; $\frac{3}{8}$ in.; " " " " " " " "
4. *Casnonia pennsylvanica*; $\frac{1}{2}$ in.; chestnut brown.
5. *Brachynus perplexus*; $\frac{1}{4}$ in.;
6. " *fumans*; $\frac{1}{4}$ in.; } head, legs, and chest part
7. " *cordicollis*; $\frac{1}{4}$ in.; } orange; wings black.
8. " *medius*; $\frac{3}{16}$ in.;
9. *Lebia atriventris*; $\frac{1}{4}$ in.; head and chest red; wings black.
10. " *tricolor*; $\frac{1}{4}$ in.; head blue-black, chest red, wings black.
11. " *pulchella*; $\frac{1}{8}$ in.; orange, with black markings.
12. " *fuscata*; $\frac{1}{8}$ in.; " " " "
13. " *scapularis*; $\frac{1}{8}$ in.; " " " "
14. " *furcata*; $\frac{1}{4}$ in.; " " " "
15. *Calida smaragdina*; $\frac{1}{4}$ in.; bright green-gold.
16. " *punctata*; $\frac{1}{4}$ in.; head and wings blue-black, chest orange.
17. *Helluomorpha præusta*; $\frac{1}{2}$ in.; head and chest red, wings black.
18. *Platynus angusticollis*; $\frac{1}{2}$ in.; black.
19. " *sinuatus*; $\frac{3}{8}$ in.; black.
20. " *extensicollis*; $\frac{1}{4}$ in.; } head metallic green;
21. " *bicolor*; $\frac{1}{4}$ in.; } chest steel-blue;
22. " *cincticollis*; $\frac{3}{8}$ in.; } wings brown.
23. " *decorus*; $\frac{1}{4}$ in.; head green, chest orange, wings black.
24. " *cupripennis*; $\frac{1}{4}$ in.; head and chest green-gold, wings red-gold.
25. *Calathus mollis*; $\frac{1}{4}$ in.; brown.
26. *Cymindis americana*; $\frac{1}{2}$ in.; dark brown, orange legs.
27. " *cribricollis*; $\frac{3}{8}$ in.; " " " "
28. " *pilosa*; $\frac{3}{8}$ in.; " " " "

1c. GROUND BEETLES.



1. *Cychrus Lecontei;* ½ in.; black-brown.
2. " *elevatus;* ⅝ in.; " "
3. " *viduus;* 1⅛ in.; " "
4. *Carabus limbatus;* 1 in.; dull black.
5. " *sylveus;* 1 in.; " "
6. " *vinctus;* 1 in.; " "
7. " *serratus;* ½ in.; " "
8. *Calosoma scrutator;* 1½ in.; head black, chest black with red edge, wings bright green-gold.
9. " *willcoxi;* ⅝ in.; like 8 in shape and color.
10. " *calidum;* ⅝ in.; black, with rows of gold dots on wing.
11. " *frigidum;* ⅝ in.; dull black.
12. *Blethisa quadricollis;* ½ in.; shiny black.
13. *Nebria saturalis;* ½ in.; black, with metal shine.
14. " *Stahlbergi;* ½ in.; " " " "
15. " *pallipes;* ½ in.; black, legs orange-red.
16. *Bembidium rupestre;* ¼ in.; head and chest black, wings brown, with 2 light dots.

    There are many kinds, with head and chest black or green bronze, and wings brown; size from ⅜ to $\frac{1}{16}$ in.; and similar shape.
17. *Patrobus longicornis;* ½ in.; black, legs red.
18. " *septembrionis;* ⅜ in.; " " "
19. *Chlœnius sericeus;* ⅜ in.; green-gold, legs and feeler orange.
20. " *œstivus;* ⅜ in.; red bronze, legs orange.
21. " *prasinus;* ⅜ in.; green-gold, legs orange.
22. " *nemoralis;* ½ in.; chest red-gold, wings dark purple.
23. " *tricolor;* ⅜ in.; head and chest green, wing brown.
24. " *pennsylvanicus;* ⅜ in.; head and chest green, wing brown.
25. *Anomoglossum emarginatus;* ½ in.; head and chest green-gold, wings violet-purple, legs orange; like 21. but front of chest broader.
26. *Brachylobus lithophilus;* ¼ in.; green-gold.

1*d*. GROUND BEETLES.

1. *Agonoderus lineola*; $\frac{3}{8}$ in.; orange, with black marks.
2. " *comma*; $\frac{1}{4}$ in.; head black, chest orange, with a dark blotch.
3. *Diplochila laticollis*; $\frac{1}{2}$ in. black-brown.
4. " *major*; $\frac{5}{8}$ in.; black-brown.
5. *Discaelus dilatatus*; $\frac{3}{4}$ in.; black.
6. " *purpuratus*; $\frac{3}{4}$ in.; bronze.
7. " *elongatus*; $\frac{1}{2}$ in.; black.
8. " *teter*; $\frac{1}{2}$ in.; black.
9. " *politus*; $\frac{3}{8}$ in.; chestnut-brown.
10. *Badister pulchellus*; $\frac{1}{4}$ in.; chestnut-brown and black.
11. *Harpalus erraticus*; $\frac{5}{8}$ in.; head and chest orange, wing dark brown.
12. " *caliginosus*; 1 in.; head and chest black, wing dark brown.
13. " *erythropus*; $\frac{5}{8}$ in.; " " " "
14. " *compar*; $\frac{1}{2}$ in.; dark brown, legs red.
15. " *dichrous*; $\frac{5}{8}$ in.; black, legs light red.
16. " *vulpeculus*; $\frac{5}{8}$ in.; black, legs brown.
17. " *vividiæneus*; $\frac{5}{16}$ in.; steel-blue.
18. *Harpalus faunus*; $\frac{1}{2}$ in.; black.
19. " *pennsylvanicus*; $\frac{5}{8}$ in.; black.
20. " *pleuriticus*; $\frac{1}{4}$ in.; black.
21. " *rufimanus*; $\frac{3}{8}$ in.; steel-blue.
22. " *fallax*; $\frac{5}{16}$ in.; black.
23. " *spadiceus*; $\frac{5}{16}$ in.; black.
24. " *epacipennis*; $\frac{1}{4}$ in.; black.
25. " *herbivagus*; $\frac{1}{4}$ in.; black.
26. " *laticeps*; $\frac{1}{2}$ in.; black.
27. *Anisodactylus rusticus*; $\frac{1}{2}$ in.; black.
28. " *harrisii*; $\frac{3}{8}$ in.; black.
29. " *discoideus*; $\frac{1}{2}$ in.; chestnut, with black head and marks.
30. " *baltimorensis*; $\frac{3}{8}$ in.; head and chest black, wing chestnut.
31. " *interstitialis*; $\frac{3}{8}$ in.; head and chest orange, wing black.
32. " *verticalis*; $\frac{1}{2}$ in.; dark brown, yellow stripe on head and yellow legs.
33. *Geopinus incrastus*; $\frac{1}{2}$ in.; chestnut, with dark marks.

1e. GROUND BEETLES.

1. *Myas coracinus;* ½ in.; dark brown.
2. " *cyanescens;* ½ in.; blue-black.
3. *Pterostichus rostratus;* $\frac{5}{16}$ in.; black.
" *lachrymosus;* ½ in.; black.
" *caudicalis;* ⅜ in.; "
" *hudsonicus;* ¼ in.; "
" *punctatissimus;* ½ in.; black, wing full of pin-holes.
" *orinomum;* ⅜ in.; chest black, wing brown, legs black.
" *Lucgotii;* ⅜ in.; shiny black, wings brown, legs orange.
" *erythropus;* ¼ in.; like *Lucgotii.*
" *patruelis;* $\frac{3}{16}$ in.; like *Lucgotii.*
4. " *Sayi;* ⅜ in.; chest bright blue-green, wing purple-bronze.
Pterostichus lucublandus; $\frac{5}{16}$ in.; chest bright blue-green, wing purple-bronze.
5. *Evarthus sordalis;* ¾ in.; black.
6. *Clivina fossor;* ¼ in.; brown.
7. *Pasimachus sublaevis;* 1 in.; dark brown.
8. " *elongatus;* 1 in.; dark brown, narrower.
9. *Scarites subterraneus;* ⅝ in.; dark brown.
10. *Amara erratica;* ½ in.; brown-bronze.
11. " *obesa;* ⅜ in.; dark brown.
12. " *similis;* ⅜ in.; chest shiny black, wings brown.
13. " *chalcea;* ½ in.; " " " " "
14. " *musculus;* $\frac{3}{16}$ in.; orange-chestnut.

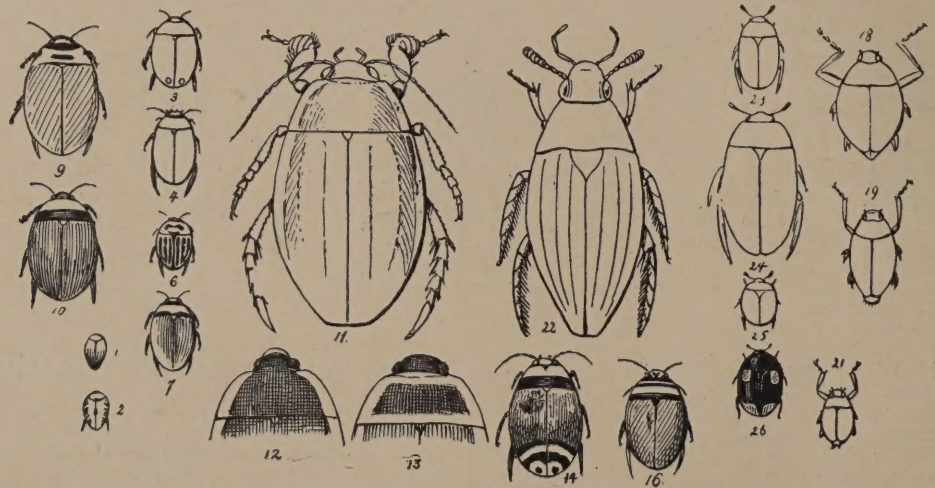
2. WATER BEETLES, WATER TIGERS. DIVERS.

The **Dytiscidæ** have long, slender feelers, and hind legs like oars. They feed on insects, fish spawn, and small fish, flying by night from pond to pond.

The **Gyrinidæ** or whirligigs have short, stumpy feelers; their forelegs are armlike and longest, the other pairs of legs being like small paddles. They swim in circles on the surface of the water, and dive when disturbed. They feed on insects. Their eyes are horizontally divided.

The **Hydrophilidæ** have club-shaped feelers, and their middle and hind legs are like paddles. They are slow swimmers, and feed on vegetable matter.

Sphæridium, though built like a water beetle, lives in manure.



1. *Hydranthus iricolor;* $\frac{3}{16}$ in.; red, darker behind.
2. *Laccophilus maculosus;* $\frac{3}{16}$ in.; light brown, dark marks.
3. *Ilybius biguttata;* $\frac{3}{8}$ in.; black, two light spots on tail end.
4. *Agabus seriatus;* $\frac{3}{8}$ in.; black.
5. " *punctulatus;* $\frac{5}{16}$ in.; black, wings dark chestnut.
6. " *talmiolatus;* $\frac{1}{4}$ in.; orange, lighter on wing, with black marks.
7. *Rhantus bistriatus;* $\frac{3}{8}$ in.; chest chestnut, with two black stripes, wings grayish brown.
8. *Colymbetes longulus;* $\frac{5}{8}$ in.; black.
9. *Colymbetes sculptilis;* $\frac{5}{8}$ in.; light ochre-yellow, wings light brown.
10. *Hydaticus stagnalis;* $\frac{1}{4}$ in.; black, orange stripe, wings dark brown.
11. *Dytiscus fasciventris;* 1 in.; black, with red-orange margin.
12. " *verticalis;* $1\frac{1}{4}$ in.; colored like 11.
13. " *dauricus;* $1\frac{1}{2}$ in.; color like 11.
14. *Acilius mediatus;* $\frac{5}{8}$ in.; ochre yellow, wings grayish.
15. " *semisullatus;* $\frac{5}{8}$ in.; blackish, faintly marked like 14.
16. *Graphoderes fasciatocollis;* $\frac{1}{2}$ in.; orange, wings brown.
17. " *liberus;* $\frac{3}{8}$ in.; plain chestnut-brown.

WHIRLIGIGS. GYRINIDÆ.

18. *Dineutus vittatus;* ½ in.; shiny black.
19. " *discolor;* ⅜ in.; black, legs light red.
20. *Dineutus americanus;* ½ in.; black.
21. *Gyrinus borealis;* ⅛ in.; black.

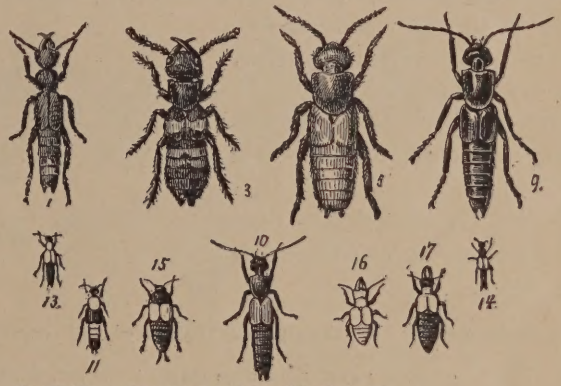
WATER BEETLES. HYDROPHILIDÆ.

22. *Hydrophilus triangularis;* 2 in.; black.
23. " *nimbatus;* ⅜ in.; black.
24. *Hydrocharis obtusatus;* ¾ in.; black.
25. *Hydrobius globosus;* ¼ in.; black, convex, globular.
26. " *fuscipes;* ¼ in.; black, finely ribbed.
27. *Sphæridium scarabæoides;* ½ in.; black, with four red spots.
28. *Philhydrus bifidus;* ¼ in.; black.
" *cinctus;* ⅛ in.; black.
29. *Berosus striatus;* ⅛ in.; brown and black blotched.

3. SHORT WINGS, ROVE BEETLES.

The **Staphylinidæ**, Short wings, or Rove beetles have long, flat bodies and very short wings, and appear antlike, but are good flyers and runners. They live on decaying animal and vegetable matter, particularly fungi, and are found under bark, in moss, or on flowers.

There are numerous small varieties not mentioned here because of no easily distinguishing marks.



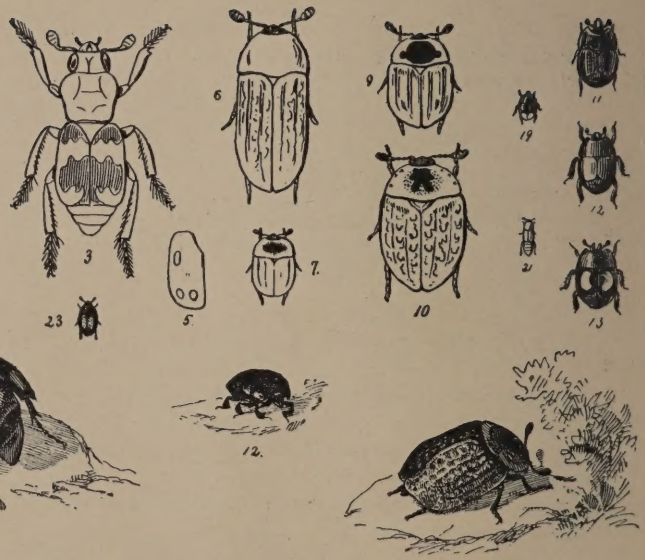
1. *Leistothrophus cingulatus;* ⅜ in.; dark brown, hairy, a lighter spot on ring before last on tail end.
2. *Quedius;* ¼ to ⅜ in.; numerous species; black.
3. *Creophilus villosus;* ⅜ in.; black, gray cross-stripes, hairy.
4. *Staphylinus capitatus;* ⅝ in.; red-brown, last two rings gray.
5. " *maculosus;* ⅜ in.; reddish-brown, head and chest darker, hairy.
6. " *mysticus;* ⅜ in.; dark brown, wings lighter, narrower than 5.
7. " *vulpinus;* ⅝ in.; red-brown, wings bright fox color, hairy.
8. *Staphylinus tomentosus;* ½ in.; black, hairy.
9. *Ocypus ater;* ⅜ in.; shiny black, no hair, narrow.
10. *Philonthus cyanipennis;* ⅝ in.; black, wing steel-blue, narrow.
11. " *lætulus;* ¼ in.; orange and black.
12. *Stenus;* ⅛ in.; numerous species; black, and very slender.
13. *Baptolinus macrocephalus;* ¼ in.; chestnut-brown and black.
14. *Cryptolobium cribratum;* $\frac{5}{16}$ in.; black, wings chestnut-brown.
15. *Tachinus fimbriatus;* ⅜ in.; black, wings chestnut.
16. *Oxyporus lateralis;* ¼ in.; orange.
17. " *rufipennis;* ⅜ in.; black and orange-red.

4. CARRION, OR SEXTON BEETLES.

The **Necrophori,** Sexton, or Burying beetles, have strong bodies and legs and short wings. They move slowly and with lowered heads. They have the habit of laying their eggs on dead mice or birds and then covering the whole with earth. They seem particularly fond of dead fish or snakes.

The **Silphidæ** are flat, turtle-like, and their covering seems too large for their bodies. Their wings are leathery, rough, and crumpled. They move slowly, and feed on carrion.

The **Histeridæ** are square, oblong-shaped, short-winged, flattish, shining beetles. They feed on animal and vegetable matter. Like the Silphidæ they pull in their heads and legs, when disturbed, like a turtle.



1. *Necrophorus sayii;* ¾ in.; sharply defined red-orange marks on wings, black predominant.
2. " *orbicollis;* ¾ in.; red-orange marks, indistinct, blotched.
3. " *marginatus;* ¾ in.; red-orange marks predominant.
4. " *tomentosus;* ⅝ in.; like 1, but covered with yellow wool.
5. " *pustulatus;* ¾ in.; dark brown, with light orange spots.
6. *Silpha surinamensis;* ⅞ in.; black.
7. " *lapponica;* 5/16 in.; chest dark yellow and black.
8. " *inæqualis;* ½ in.; dark ashy-brown.
9. " *noveboracensis;* ½ in.; chest orange with black; wings ashy-brown.
10. " *americana;* ⅝ in.; yellow with black; wing ashy-gray.
11. *Hololepta lucida;* 5/16 in.; black, very thin and flat.
12. *Hister arcuatus;* 5/16 in.; black, body semi-globular.
13. " *biplagiatus;* 5/16 in.; black, with orange marks on wings.
14. " *Harrisii;* 3/16 in.; like 13.
15. " *interruptus;* ¼ in.; black.
16. " *immunis;* ¼ in.; black.
17. " *civilis;* ⅛ in.; black.
18. " *marginicollis;* ¼ in.; black, wings dark brown.
19. " *bimaculatus;* ⅛ in.; black, with orange red spots.
20. " *Lecontei;* 1/16 in.; chestnut-brown.
21. " *gracilis;* 3/16 in.; black.
22. *Saprinus assimilis;* ⅛ in.; black.
23. " *dimidiatipennis;* ⅛ in.; black, wings chestnut-brown.

5. FLOWER AND MOSS BEETLES.

The **Nitidulidæ** are mostly flat, oval beetles, and live on decomposing matter, and are found on flowers, moss, bark, or dried animal matter. They are very numerous, but too small for our observation here.

1. *Nitidula bipustulata;* $\frac{1}{8}$ in.; dark brown, with light spots.
2. " *rufipes;* $\frac{1}{16}$ in.; chestnut-brown.
3. " *zigzac;* $\frac{1}{16}$ in.; brown, woolly, and with lighter spots.
4. *Prometopia sexmaculata;* $\frac{1}{8}$ in.; chestnut-brown, edges transparent.
5. *Phenolia grossa;* $\frac{1}{4}$ in.; dark chestnut-brown.
6. *Ips fasciatus;* $\frac{5}{16}$ in.; black, with four orange-red spots.
7. " *sanguinolentus;* $\frac{1}{4}$ in.; black, with two orange-red blotches and two spots.
8. " *confluentus;* $\frac{1}{4}$ in.; orange-red, with two round black spots.
9. *Thymalus fulgidus;* $\frac{3}{16}$ in.; brown, with transparent margin; convex.
10. *Scaphidium;* $\frac{1}{8}$ in.; blue-black; convex.
11. *Trogosita virescens;* $\frac{3}{8}$ in.; black, with green shine.
12. *Nemosoma parallelum;* $\frac{3}{16}$ in.; chest black, wing brown.
13. *Tenebrioides mauritanica;* $\frac{5}{16}$ in.; black or brown.
14 " *corticalis;* $\frac{1}{4}$ in.
15. *Peltes ferruginea;* $\frac{1}{4}$ in.; chestnut, with transparent margin.
16. *Calitus scabra;* $\frac{3}{8}$ in.; dull black.
17. *Carpophilus hemipterus;* $\frac{1}{16}$ in.; dark brown, with light spots.

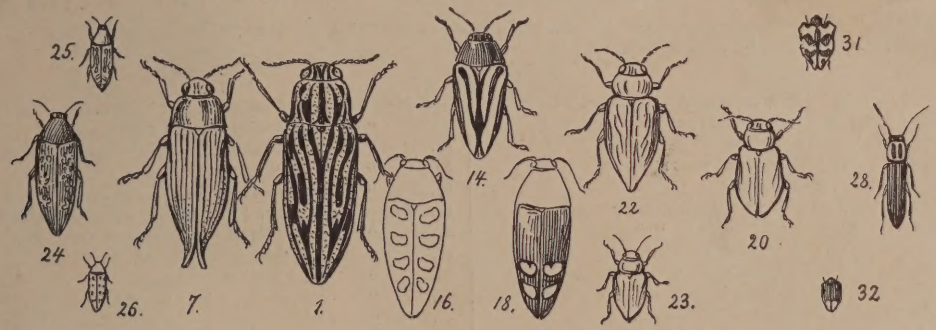
6. BACON, FUR, AND WOOL BEETLES.

The **Dermestidæ** are very injurious and obnoxious insects, their grubs devouring meat, bacon, skins, wool, and insect collections. The beetles are often found on flowers of the spiræa and other plants.

1. *Dermestes marmoratus;* $\frac{1}{3}$ in.; black, wings covered with gray hair.
2. " *nubilus;* $\frac{1}{4}$ in.; black.
3. " *lardarius;* $\frac{1}{4}$ in.; black, with gray band across wings.
4. " *vulpinus;* $\frac{1}{4}$ in.; black, with few gray hairs on wings.
5. *Attagenus pellio;* $\frac{3}{16}$ in.; black, with 2 light spots.
6. " *megatoma;* $\frac{1}{8}$ in.; black, wings dark chestnut-brown.
7. *Anthrenus varius;* $\frac{1}{16}$ in.; black, with light buff-gray.
8. *Anthrenus scrophulariæ;* $\frac{1}{10}$ in.; black, marks reddish on back and whitish on sides. (The much dreaded buffalo bug.)
9. " *museorum;* $\frac{1}{20}$ in.; black and gray.
10. *Byrrhus americanus;* $\frac{3}{16}$ in.; dull black.
11. *Mycetophagus punctatus;* $\frac{1}{4}$ in.; black, wings chestnut-brown, with black spots.
12. *Byturus unicolor;* $\frac{3}{16}$ in.; brown. (The raspberry maggot.)

7. BRIGHT METALLIC BORER BEETLES.

The **Buprestidæ** are mostly of brilliant metallic colors, with very hard and peculiarly grooved chest and wings resembling a plumstone. They are sluggish creepers but good flyers. Their grubs are very destructive wood borers.



1. *Chalcophora virginiensis;* $\frac{3}{8}$ in.;
2. " *lacustris;* 1 in.;
3. " *liberta;* (pine tree borer); $\frac{3}{4}$ in.;
4. " *georgiana;* $\frac{3}{8}$ in.;
5. " *fortis;* 1 in.;

chest and wings deeply irregular, furrowed, the elevated parts polished black, in the furrows red coppery golden.

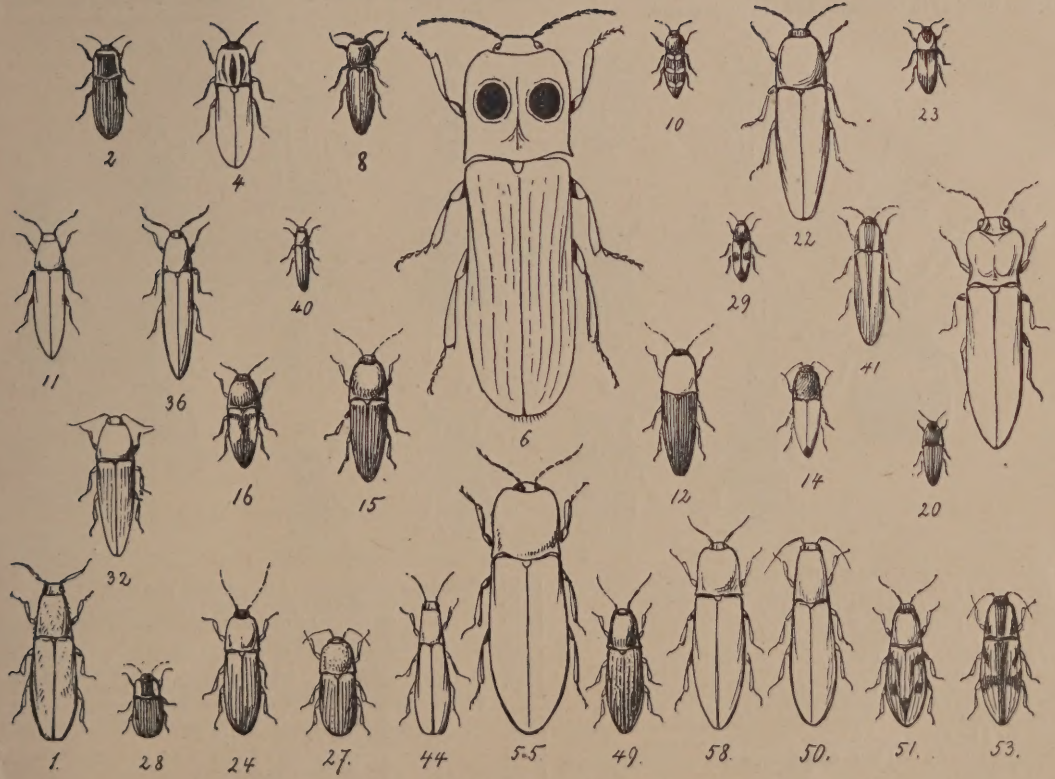
6. *Dicera prolongata;* $\frac{3}{4}$ in.; dark bronze, striped.
7. " *divaricata;* $\frac{3}{4}$ in.; light coppery, and square black spots. (Borers in apple, cherry, and peach trees.)
8. " *pugionata;* $\frac{1}{2}$ in.; light coppery, covered with irregular warts.
9. " *obscura;* $\frac{5}{8}$ in.; dull metallic, striped.
10. " *tenebrosa;* $\frac{5}{8}$ in.; bronze, with regular warts.
11. " *tuberculata;* $\frac{5}{8}$ in.; like 10.
12. " *lugubris;* $\frac{1}{2}$ in.; like 10, but dull colored.
13. " *punctulata;* $\frac{3}{8}$ in ; dull black. (Pitch-pine borer.)
14. *Buprestis lineata;* $\frac{1}{2}$ in.; black, wings gold, with black stripes.
15. " *consularis;* $\frac{1}{2}$ in.; brown bronze, with three gold spots on wing.
16. " *Nuttalli;* $\frac{5}{8}$ in.; color like 15, four spots.
17. " *maculiventris;* $\frac{5}{8}$ in.; black bronze.
18. " *fasciata;* $\frac{5}{8}$ in.; green bronze, with gold dots.
19. *Buprestis striata;* $\frac{5}{8}$ in.; black, with green bronze, bordered black wings. (Spruce and pine borer.)
20. *Melanophila longipes;* $\frac{3}{8}$ in.; dull black.
21. *Chrysobothris femorata;* $\frac{1}{2}$ in.; dull bronze, with two spots on wing. (Apple, peach, and oak borer.)
22. " *dentipes;* $\frac{1}{2}$ in.; dull bronze-purplish, coppery below. (Oak borer.)
23. " *Harrisii;* $\frac{1}{4}$ in.; bright blue and green-gold. (Bores in small limbs of pines and apples.)
24. *Acmæodera ornata;* $\frac{1}{2}$ in.; chest part black, wings dark brown.
25. " *pulchella;* $\frac{1}{4}$ in.; color like 24, with light spots.
26. " *culta;* $\frac{3}{16}$ in.; color like 24.
27. *Agrilus ruficollis;* $\frac{1}{4}$ in.; black, chest part red. (Borer in stems of raspberry.)
28. " *vittaticollis;* $\frac{3}{8}$ in.; black, chest part gray striped.
29. " *anxius;* $\frac{1}{4}$ in.; black.
30. " *otiosus;* $\frac{1}{2}$ in.; black, bronze shine.
31. *Brachys ovata;* $\frac{3}{16}$ in.; black and gray.
32. " *ærosa;* $\frac{1}{8}$ in.; black, with two gray spots.

8. SKIPJACKS, SNAPPING BEETLES.

The **Elateridæ**, skipjacks or snapping beetles, when laid on their backs turn a summersault to regain their feet, which are very short and weak. Their grubs live in rotten wood, in the earth, or upon living plants, and particularly grasses. The wire worms are grubs of some *elators*.

Observe on opposite plate the two upper rows are of oblong, oval shape; in the third row they are narrowed towards the end, while in the last row they are wider towards the lower half of their bodies.

1. *Fornax orchesides;* ⅝ in.; dark brown, covered with grayish hair.
2. *Adelocera discoidea;* ⅜ in.; dull black, chest part red bordered.
3. " *aurorata;* ½ in.; dull brown.
4. " *obtecta;* ½ in.; dull brown, chest part striped.
5. " *brevicornis;* ½ in.; dull black.
6. *Alaus oculatus;* 1½ in.; black, covered with a whitish powder.
7. " *myops;* 1 in.; " " " " "
8. *Cardiphorus convexulus;* ⅜ in.; chest blue-black, wings brown.
9. " *amictus;* ⅜ in.; chest blue-black, wings black.
10. " *cardisce;* ¼ in.; like 9, three light spots on each wing.
11. *Monocrepidius lividus;* ½ in.; light yellowish brown.
12. *Elater rubicollis;* ½ in.; black, chest part red.
13. " *nigricollis;* ⅜ in.; light brown, head and chest black.
14. " *linteus;* ⅜ in.; like 13, but black tips on wings.
15. " *discoideus;* ½ in.; head and chest part black, wings brown, lighter at base.
16. " *semicinctus;* ⅜ in.; like 15, except wings.
17. " *vitiosus;* ½ in.; head and chest black, wings light brown.
18. " *socer;* ⅜ in.; black.
19. " *fuscatus;* ¼ in.; head and chest black, wings brown.
20. " *rubricus;* ¼ in.; head black, chest pa t red, wings brown.
21. " *collaris;* ¼ in.; head and chest part red, wings black.
22. *Ludius abruptus;* ¾ in.; shiny black.
23. *Drasterius dorsalis;* ¼ in.; light chestnut, with darker marks.
24. *Agriotes stabilis;* ½ in.; head and chest black, wings brown.
25. " *limosus;* ¼ in.; like 21.
26. " *oblongicollis;* ¼ in.; chestnut-brown.
27. " *manius;* ⅜ in.; chestnut-brown.
28. " *fuscosus;* ¼ in.; black, chest part with red border.
29. *Betarmon bigeminatus;* $\frac{3}{16}$ in.; black, with chestnut on wings.
30. *Melanotus Leonardi;* ⅜ in.; black, chest part red.
31. *Melanotus strobicollis;* ½ in.; brown.
32. " *castanipes;* ⅝ in.; brown.
33. " *communis;* ⅜ in.; light brown, a furrow on chest.
34. " *pertinax;* ⅜ in.; black.
35. " *sagittarius;* ⅜ in.; dark brown.
36. *Limonius griseus;* ⅝ in.; brown, covered with gray hair.
37. " *auripilis;* ⅝ in.; head and chest part black, wing brown.
38. " *plebejus;* ½ in.; like 37.
39. " *aurifer;* ⅜ in.; black.
40. " *quercinus;* ¼ in.; black.
41. *Campylus denticornis;* ½ in.; brown, with light stripes.
42. " *productus;* ½ in.; dark brown.
43. *Pityobius sanguinus;* 1 in.; red chestnut-brown.
44. *Athous rufifrons;* ½ in.; reddish brown.
45. *Paranomus;* } small and red-brown; numerous.
46. *Sericosomus;* }
47. *Corymbites virens;* ¾ in.; head and chest part black, wing light brown.
48. " *tesselatus;* ⅝ in.; dark brown.
49. " *resplendens;* ½ in.; red, blue, and green bronze.
50. " *pyrrhos;* ¾ in.; red chestnut-brown.
51. " *hieroglyphicus;* ½ in.; head and chest black, wings buff with brown marks.
52. " *propola;* ¼ in.; like 51.
53. " *cruciatus;* ½ in.; like 51, and two red stripes on chest part.
54. " *æripennis;* ¾ in.; black.
55. *Melanactes piceus;* 1¼ in.; shiny black.
56. " *moris;* 1 in.; like 55.
57. *Asaphes decoloratus;* ½ in.; head and chest black, wing brown.
58. " *memnonius;* ¾ in.; chestnut-brown.
59. " *bilobatus;* ½ in.; reddish chestnut-brown.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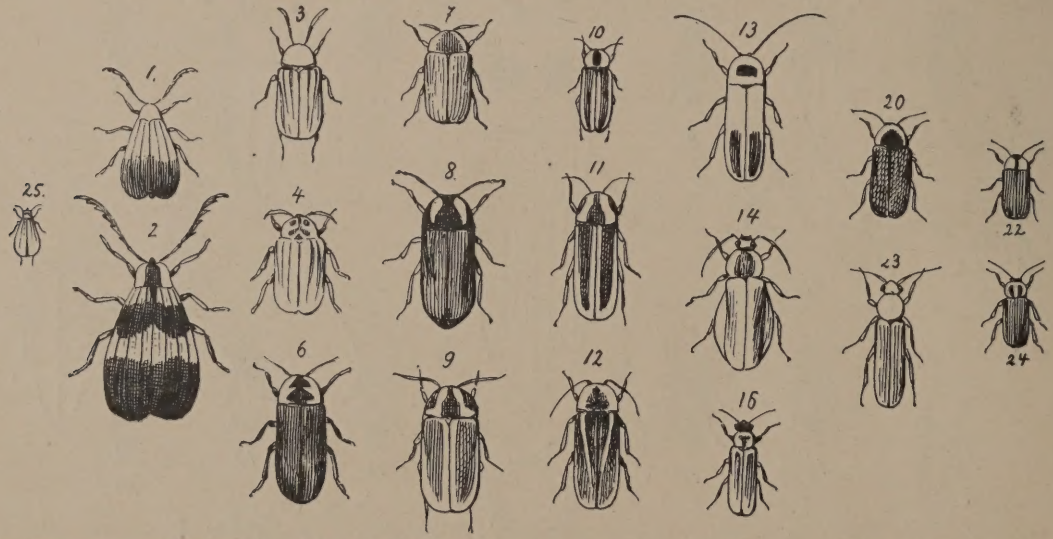
9. FIRE FLIES, LIGHTNING BUGS.

The **Lampyridæ**, fire flies or lightning bugs, have leathery, soft wings and chest. Some of their females are wingless (glow worms). Their grubs live in rotten wood or in the earth, and are flesh eaters.



1. *Calopteron reticulatum;* ⅜ in.; buff-yellow and brown, wings veiny.
2. " *typicum;* ⅝ in.; orange and black, wings veiny.
3. *Lopheros fraternus;* ⅜ in; brown, wings veiny.
4. *Eros coccinatus;* ⅜ in.; light buff, wings veiny.
5. " *crenatus;* ⅜ in.; brown, wings veiny.
6. *Calochromus perfacetus;* ½ in.; black, chest part red edged.
7. *Lucidota atra;* ⅜ in.; light brown.
8. *Ellychina cornesca;* ½ in.; dark brown, chest part orange border.
9. *Pyractomena angulata;* ½ in.; brown, chest part orange marked.
10. *Photinus consanguineus;* $\frac{5}{16}$ in.; light brown, chest part red and black.
11. " *pyralis;* ½ in.; buff and brown, chest part orange.
12. *Photuris pennsylvanica;* ½ in.; buff and gray, chest part red, yellow, and black.
13. *Chauliognathus pennsylvanica;* ½ in.; buff, with dark brown.
14. *Podabrus tricostatus;* ½ in.; brown and buff.
15. " *negosulus;* ¼ in.; like 14 in color.
16. " *basilaris;* ⅜ in.; head black, chest orange, wing grayish buff and brown.
17. " *diadema;* ⅜ in.; dark brown, light edge on chest part.
18. " *punctipollis;* ¼ in.; dark brown, black dot on chest part.
19. " *lævicollis;* $\frac{1}{16}$ in.; dark brown, orange.
20. *Telephorus carolinus;* ⅜ in.; blackish brown, chest part orange edged.
21. " *fraxinus;* $\frac{3}{16}$ in.; blackish brown, chest part black.
22. " *lineola;* ¼ in; like 20.
23. " *rotundicollis;* ¼ in.; head and chest part orange, wings brownish gray.
24. " *bilineatus;* ¼ in.; like 20.
25. *Polemius laticornis;* $\frac{3}{16}$ in.; brown.

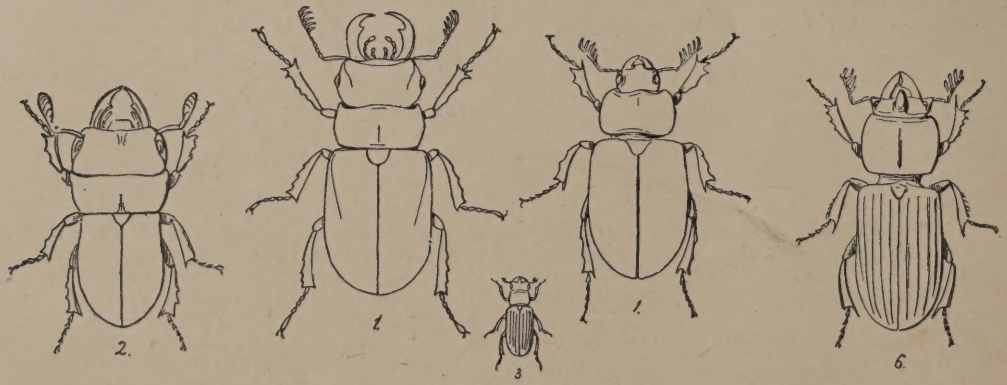
10. FLOWER BEETLES.

The **Malachidæ** and **Cleridæ** are ant-like, flower beetles. Their grubs feed on the eggs of other insects, particularly bees and bumble bees.
The **Ptinidæ** are very destructive to woollen cloth, fur, and grain.
The **Cupesidæ** are found under the bark of decaying trees.

1. *Collops tricolor*; $\frac{1}{8}$ in.; head black, chest orange, wing blue-black.
2. " *4 maculatus*; $\frac{1}{8}$ in.; head black, chest orange, wing orange and black.
3. " *vittatus*; $\frac{1}{8}$ in.; head black, chest orange and black, wing orange-gray.
4. *Clerus nigrifrons*; $\frac{1}{4}$ in.; head black, chest and wings red, latter with brown and white marks.
5. " *thoracicus*; $\frac{3}{16}$ in.; head black, chest orange, wing brown.
6. " *nigripes*; $\frac{3}{16}$ in.; like 5, with black chest.
7. *Cymatodera bicolor*; $\frac{5}{16}$ in.; head black, chest orange, wing blackish-brown.
8. *Trichodes Nuttalli*; $\frac{1}{4}$ in.; head black, chest steel-blue, wing red and black.
9. " *apivorus*; $\frac{3}{8}$ in.; head black, chest black, wings red and black.
10. *Thanasimus dubius*; $\frac{1}{4}$ in.; orange with light brown marks on wing.
11. " *nibilus*; $\frac{1}{4}$ in.; head and chest black, otherwise like 10.
12. *Thaneroclerus sanguineus*; $\frac{1}{8}$ in.; like 10 in shape, red-brown.
13. *Chariessa pilosa*; $\frac{1}{2}$ in.; head black, chest orange and black, wing black.
14. *Necrobia rufipes*; $\frac{1}{8}$ in.; steel-blue, red legs.
15. " *violacea*; $\frac{1}{16}$ in.; steel-blue.
16. " *ruficollis*; $\frac{1}{8}$ in.; chest and shoulder red, head and lower wings black or steel-blue.
17. *Ptinus fur*; $\frac{1}{8}$ in.; chestnut-brown, larvæ red.
18. *Eucrada humeralis*; $\frac{1}{8}$ in.; head black, chestnut-brown.
19. *Ernobius mollis*; $\frac{1}{8}$ in.; chestnut-brown.
20. *Anobium notatum*; $\frac{1}{8}$ in.; shape like 19, dark brown.
21. *Trypopitys sericeus*; $\frac{1}{8}$ in.; " " " " "
22. *Ptilinus ruficornis*; $\frac{1}{8}$ in.; head and chest black, wings chestnut-brown, red feathery feelers.
23. *Endecatomus rugosus*; $\frac{1}{8}$ in.; ash gray, rough, like a piece of bark.
24. *Cupes capitata*; $\frac{1}{4}$ in.; head white, black eyes, chest and wings buff.
25. " *concolor*; $\frac{1}{4}$ in.; buff.

11. STAG BEETLES, HORN BUGS.

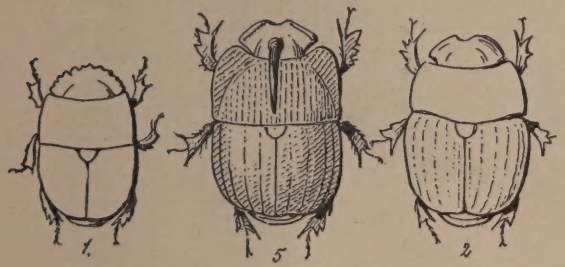
The **Lucanidæ**, stag beetles or horn bugs; the males being remarkable for their long, horn-like jaws. They feed on the sap of trees, their grubs living in old tree stumps.



1. *Lucanus dama;* 1¼ in.; mahogany-brown, male and female.
2. *Dorcus parallelus;* ¾ in.; black.
3. *Platycerus quercus;* ⅜ in.; chestnut-brown.
4. *Platycerus depressus;* ⅜ in.; black, like 1 in shape.
5. *Ceruthus piceus;* ⅝ in.; black, like 1 in shape.
6. *Passalus cornutus;* 1¼ in.; black.

12. TUMBLE BEETLES AND DUNG BEETLES.

The **Coprini**, tumble bugs, and **Asphodini**, manure beetles, are short bodied, very convex beetles, mostly black with a brilliant metallic shine. They are often found in bright sunshine in the roads, feeding on animal excrements. They are sluggish walkers but good flyers. Easily recognized by the hood-like shield which covers their heads completely when seen from above.



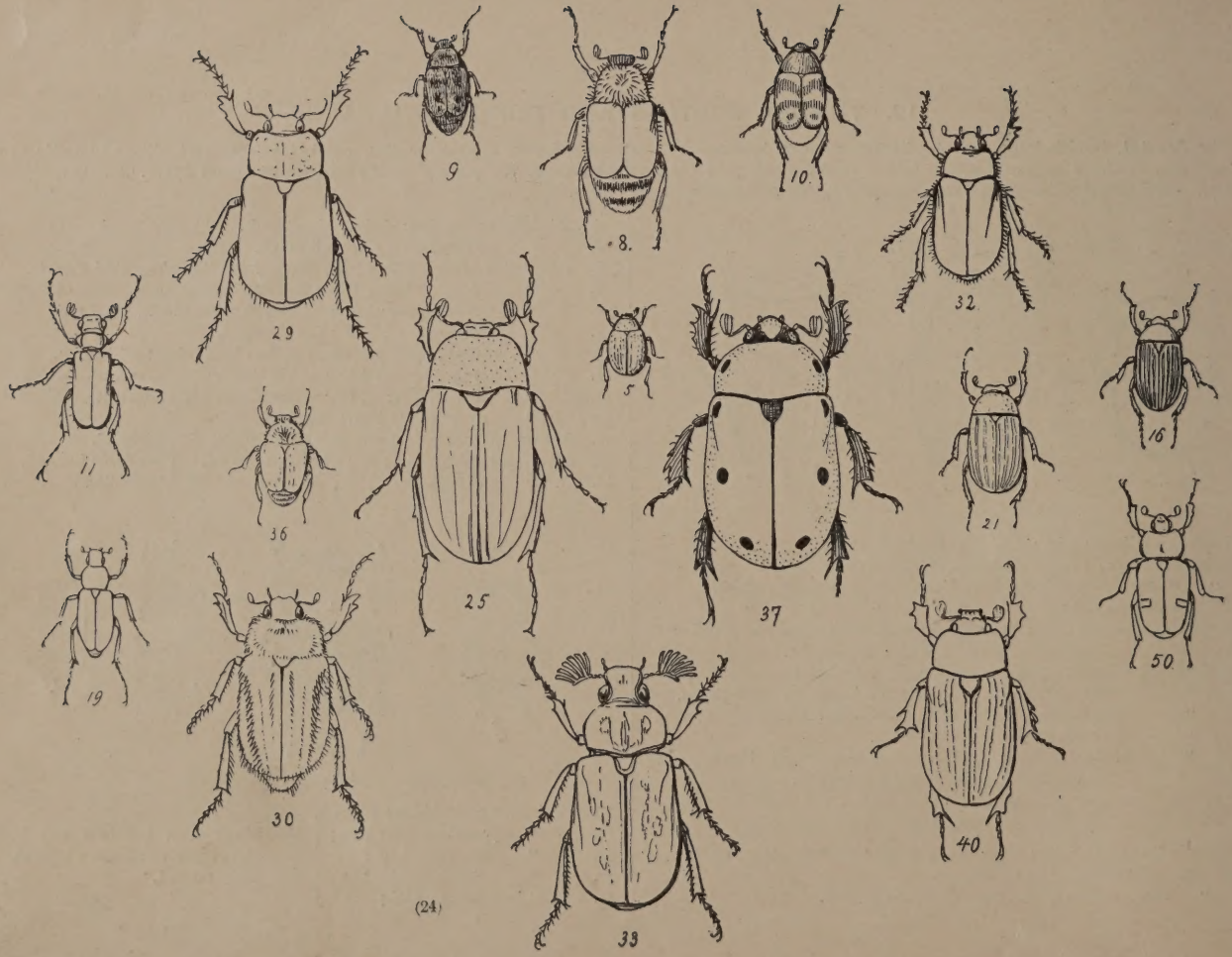
1. *Canthon vigilans;* $\frac{5}{8}$ in.; dull bronze-black, smooth.
2. *Copris carolina;* $\frac{3}{4}$ in.; blue-black, wings shallow ribbed.
3. " *anaglypticus;* $\frac{1}{2}$ in.; blue-black, wings shallow ribbed.
4. " *minutus;* $\frac{1}{2}$ in.; " " " "
5. *Phaneus carnifex;* $\frac{7}{8}$ in.; head silver with black horn, chest red with green gold edge, wings green-gold.
6. *Onthophagus Hecate;* $\frac{1}{4}$ in.; black wings, not ribbed.
7. " *orpheus;* $\frac{3}{16}$ in.; blue, red and green metallic shine.
8. " *striatulus;* $\frac{3}{16}$ in.; head and chest black, wings brown.
9. " *pennsylvanicus;* $\frac{1}{2}$ in.; black.
10. " *tuberculifrons;* $\frac{3}{16}$ in.; head and chest black, wing brown, with black and white dots.

ASPHODINI.

1. *Ægialia lacustris;* $\frac{1}{6}$ in.; blue-black, shape like elongated *Copris*.
2. *Alænius imbricatus;* $\frac{1}{8}$ in.; gray.
3. " *stercorator;* $\frac{1}{8}$ in.; dark chestnut-brown.
4. *Dialytes truncatus;* $\frac{3}{16}$ in.; blue-black.
5. " *striatulus;* $\frac{1}{8}$ in.; dull black.
6. *Asphodius fossor;* $\frac{3}{8}$ in.; blue-black, form like elongated *Copris*.
7. " *hyperboreus;* $\frac{1}{4}$ in.; head and chest black, wings brown.
8. " *fimetarius;* $\frac{1}{4}$ in.; head and chest black, wing red.
9. " *granarius;* $\frac{1}{8}$ in.; dark brown.
10. " *lentus* and *nebeolus;* $\frac{1}{16}$ in.; light chestnut-brown.
11. " *inquinatus;* $\frac{1}{8}$ in.; chest black, wing chestnut, black dots.
12. " *leopardus;* $\frac{3}{16}$ in.; chest black, wing chestnut, black dots.
13. " *femoralis;* $\frac{1}{8}$ in.; like 8.
14. *Bolbocerus lazarus;* $\frac{3}{8}$ in.; chestnut-brown, shape like 17.
15. *Odontæus filicornis;* $\frac{3}{8}$ in.; chestnut-brown, } the male horned,
16. " *cornigerus;* $\frac{1}{4}$ in.; chestnut-brown, } like *Phaneus*.

17. *Geotrupes splendidus;* $\frac{1}{2}$ in.;
18. " *semiopacus;* $\frac{5}{8}$ in.;
19. " *Egeriei;* $\frac{3}{8}$ in.;
20. " *Blackburnii;* $\frac{1}{2}$ in.;
21. " *Balyi;* $\frac{3}{8}$ in.;

} blue-black with brilliant red, blue, or green-gold reflections, wings sharp and finely ribbed.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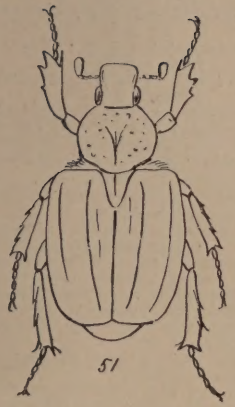
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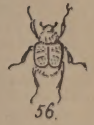
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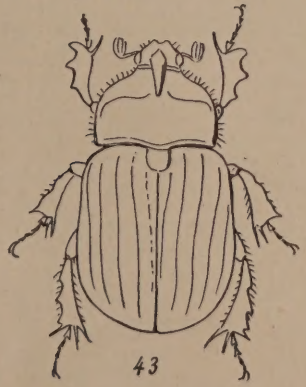
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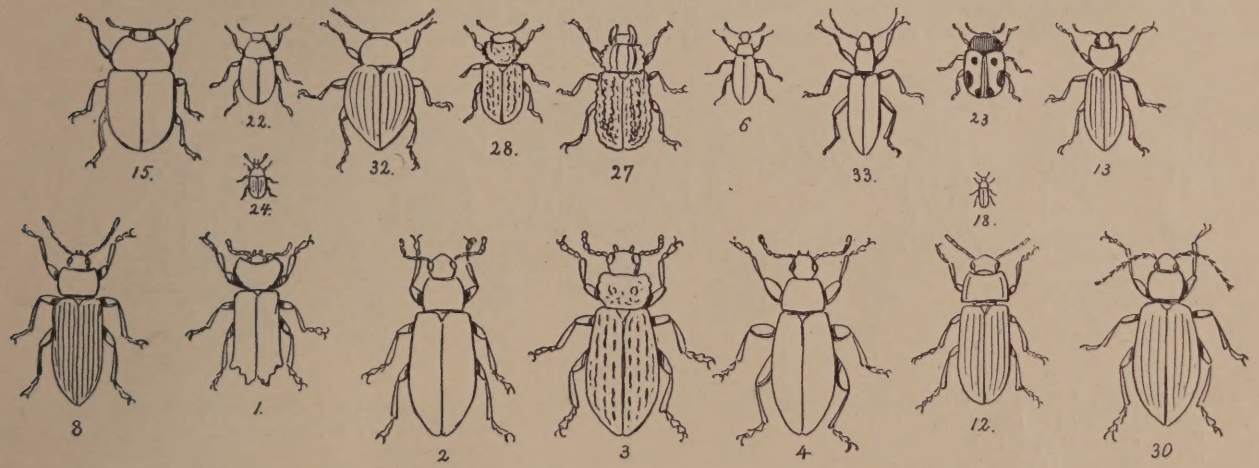
13. JUNE BUGS.

The **Melolonthidæ**, June bugs, feed entirely on vegetable matter; and some varieties, which appear in great numbers, do much damage. They are good flyers and climbers, but awkward, slow walkers on the ground, for which their thorny, sharp-clawed legs are not adapted. Their grubs, called cut worms, are often very injurious to the garden, eating the roots of plants.

1. *Nicagus obscurus;* $\frac{5}{16}$ in.; chestnut-brown.
2. *Trox suberosus;* $\frac{1}{2}$ in.; dull black and rough.
3. " *sordidus;* $\frac{1}{4}$ in.; dull brownish-black, rough.
4. " *unistriatus;* $\frac{3}{8}$ in.; dull black.
5. " *terrestris;* $\frac{1}{4}$ in.; dull brown.
6. " *capillaris;* $\frac{3}{8}$ in.; head and chest yellowish, wings brown, rough.
7. " *scaber;* $\frac{1}{4}$ in.; blackish ash-gray, cinderlike, rough.
8. *Amphicorna vulpina;* $\frac{5}{8}$ in.; head and chest dark brown, wing chestnut-brown, covered with yellow wool.
9. *Hoplia modesta;* $\frac{5}{16}$ in.; blackish, covered with gray hair. (Lives on the leaves and blossoms of the pear tree.)
10. " *trifasciata;* $\frac{3}{8}$ in.; bread-crust color with lighter mark, tail end white and golden, hairy.
11. *Dichelonycha elongatula;* $\frac{7}{16}$ in.; chestnut, with green-gold shine on wings. (Lives on hazel and birch.)
12. " *subvittata;* $\frac{7}{16}$ in.; chestnut-brown. (Lives on hazel and birch.)
13. " *albicollis;* $\frac{7}{16}$ in.; head, chest, and shield between wings covered with white hair, wings chestnut.
14. *Serica vespertina;* $\frac{3}{8}$ in.; chestnut. (Lives on sweet briar and rose.) Wings finely ribbed.
15. " *tricolor;* $\frac{5}{16}$ in.; brown, covered with yellow wool. (Lives on pear and apple.) Wings finely ribbed.
16. " *sericea;* $\frac{3}{8}$ in.; dark bay, dull, wings finely ribbed.
17. " *anthracina;* $\frac{1}{4}$ in.; blackish-brown, wings finely ribbed.
18. " *trociformis;* $\frac{1}{4}$ in.; head and chest black, wings light chestnut, wings finely ribbed.
19. *Macrodactylus suspinosus;* $\frac{3}{8}$ in.; covered with yellow-gray down, legs red. (The rose bug feeds on apple, grape, cherry, plum, peach, oak, roses, corn, vegetables, etc.)
20. *Diplotaxis sordida;* $\frac{3}{8}$ in.; head black, chest dark chestnut, wings brown, wings faintly ribbed. (Feeds on pear.)
21. " *liberta;* $\frac{1}{2}$ in.; black, wings faintly ribbed.
22. " *tristis;* $\frac{1}{2}$ in.; chestnut, wings faintly ribbed.
23. " *frondicola;* $\frac{5}{16}$ in.; chestnut, wings faintly ribbed.
24. *Lachnosterna volvula;* $\frac{1}{2}$ in.; light buff, wings faintly 3-ribbed.
25. " *fusca;* $\frac{9}{10}$ in.; chestnut. (The June bug, or cockchafer, feeds on forest and fruit trees.) Wings faintly 3-ribbed.
26. " *fraterna;* $\frac{5}{8}$ in.; head and chest dark brown, wings chestnut, wings faintly 3-ribbed.
27. " *micans;* $\frac{5}{8}$ in.; dark blackish-brown, wings faintly 3-ribbed.
28. " *rugosa;* $\frac{3}{4}$ in.; dark chestnut, legs black, hairy, wings faintly 3-ribbed.
29. " *hirticula;* $\frac{5}{8}$ in.; dark chestnut, covered with three rows of short gray hair, wings faintly 3-ribbed.
30. " *hirsuta;* $\frac{5}{8}$ in.; dark bay, long hairy on chest, wings faintly 3-ribbed.
31. *Lachnosterna crenulata;* $\frac{5}{8}$ in.; light chestnut, very hairy, wings faintly 3-ribbed.
32. " *tristis;* $\frac{1}{2}$ in.; light chestnut, hairy, wings faintly 3-ribbed.
33. *Polyphylla variolosa;* $\frac{3}{4}$ in.; head and chest blackish, wings chestnut, not ribbed, short, white hairy in spots. (Feeds on most forest and fruit trees.)
34. *Anomala varians;* $\frac{5}{16}$ in.; head and chest black, edge chestnut, wings chestnut, ribbed, and black dots. (Feeds on sumach and grape.)
35. *Anomala lucicola;* $\frac{5}{16}$ in.; similar, without dots on wings. (Feeds on sumach and grape.)
36. *Strigoderma arboricola;* $\frac{3}{8}$ in.; head and chest black and woolly, wings light brown, ribbed.
37. *Pelidnota punctata;* 1 in.; light chestnut with black dots, polished, smooth, shiny. (Feeds on grape.)
38. *Cotalpa lanigera;* $\frac{3}{4}$ in.; creamy white, with bronze shine. (Feeds on pear, nut, poplar, willow, oak, and other forest trees.)
39. *Ligyrus gibosus;* $\frac{5}{8}$ in.; dark bay, shallow, and far apart ribbed, front of head toothed.
40. " *relictus;* $\frac{3}{4}$ in.; black, shallow, and far apart ribbed, front of head toothed.
41. *Aphonus frater;* $\frac{1}{2}$ in.; black-brown, ribbed.
42. " *castanius;* $\frac{3}{8}$ in.; dark bay, ribbed.
43. *Xyloryctes satyrus;* 1 in.; black.
44. *Strategus antæus;* $1\frac{1}{4}$ in.; dark bay.
45. *Euphoria areata;* $\frac{3}{8}$ in.; head and chest black, woolly, wings chestnut, with black marks.
46. " *fulgida;* $\frac{5}{8}$ in.; head and chest green, wings chestnut, smooth, and polished.
47. " *inda;* $\frac{1}{2}$ in.; head and chest dark, woolly, wings chestnut, rough, covered with fine black dots. (Feeds on sap of trees, ripe pumpkins and peaches.)
48. *Cremastochilus variolosus;* $\frac{5}{16}$ in.; dull black, rough, not ribbed.
49. " *canaliculatus;* $\frac{3}{8}$ in.; dull black, rough, not ribbed.
50. " *Harrisii;* $\frac{1}{2}$ in.; dull black, rough, not ribbed, with two gray spots on wing.
51. *Osmoderma erimicola;* 1 in.; dark bay. (Feeds on sap of apple, cherry, and other fruit trees.)
52. " *scabra;* $\frac{7}{8}$ in.; black. (Feeds on sap of apple, cherry, and other fruit trees.)
53. *Gnorimus maculosus;* $\frac{1}{2}$ in.; head and chest black, woolly, wings chocolate brown with black dots.
54. *Trichius piger;* $\frac{3}{8}$ in.; head and chest dark and woolly, wings chestnut with light stripes. (Feeds on flowers.)
55. " *affinis;* $\frac{3}{8}$ in.; head and chest dark and woolly, wing black and brown with white stripes.
56. *Valgus canaliculatus;* $\frac{3}{16}$ in.; dark chestnut with light mark on wings.

14. MEAL WORMS.

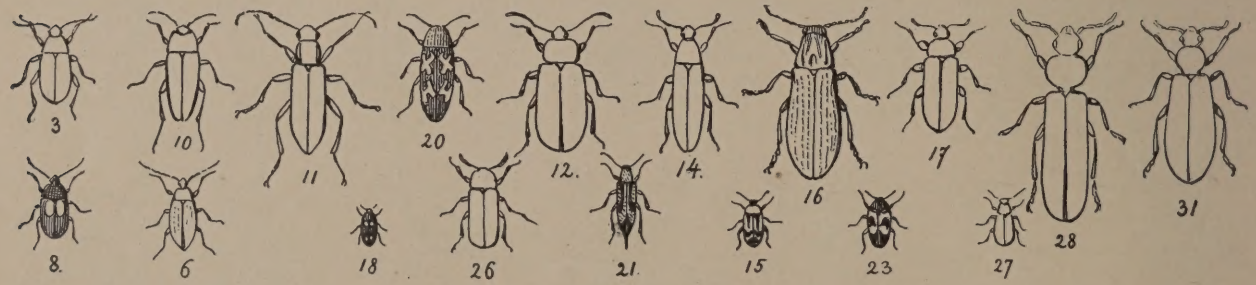
The **Tenebrionidæ**, meal worms, are flat, oblong beetles, which feed on fungi or decaying vegetable matter. Some feed on grain and flour, particularly Nos. 11 and 12. They are found in moss or under the bark of trees.



1. *Phellopsis obcordata;* ½ in.; dark brown, rough.
2. *Nyctobates pennsylvanica;* ¾ in.; black.
3. *Iphthimus opacus;* ¾ in.; dull black, rough.
4. *Merinus lævis;* ¾ in.; dull dark brown, smooth.
5. *Upis ceramboides;* $\frac{7}{16}$ in.; dull dark brown, rough.
6. *Haplandrus femoratus;* $\frac{5}{16}$ in.; dull brown, legs slender.
7. *Scotobates calcaratus;* ⅝ in.; black, ribbed wings.
8. *Xylopinus saperdioides;* ⅝ in.; chestnut, wings ribbed.
9. " *rufipes;* ½ in.; " " "
10. " *ænescens;* ½ in.; " " "
11. *Tenebrio obscurus;* ⅝ in.; dark chestnut-brown.
12. " *molitor;* ⅝ in.; dark brown, wings ribbed.
13. " *castaneus;* ½ in.; dark chestnut brown.
14. " *tenebrioides;* ½ in.; dark brown, wing ribbed.
15. *Opatrinus notus:* ⅜ in.; dull dark brown.
16. *Blapstinus mœstus;* ¼ in.; dull dark brown.
17. " *metallicus;* $\frac{3}{16}$ in.; chest black, wing chestnut.
18. *Tribolium ferrugineum;* ⅛ in.; dark chestnut-brown.
19. *Uloma impressa;* ⅜ in.; chestnut-brown, shiny, wings ribbed.
20. " *punctulata;* $\frac{5}{16}$ in.; chestnut-brown, shiny.
21. *Anædus brunneus;* $\frac{3}{16}$ in.; chestnut.
22. *Phaleria testacea;* $\frac{5}{16}$ in.; chest orange, wing buff.
23. *Diaperis hydni;* ¼ in.; chest black, wing orange and black.
24. *Hopolcephala bicornis;* ⅛ in.; steel-blue or green, two horned.
25. *Platydema excavatum;* $\frac{3}{16}$ in.; dark brown.
26. " *americanum;* ⅛ in.; dark brown.
27. *Boletotherus bifurcus;* ½ in.; dull brown with darker warts and two horns, very rough.
28. *Bolitophagus corticola;* $\frac{25}{32}$ in.; dull black, rough.
29. " *depressus;* ¼ in.; dull dark brown, rough.
30. *Helops micans;* ¾ in.; dark brown, ribbed, smooth.
31. " *æreus,* ⅜ in.; chestnut-brown, ribbed, smooth.
32. *Meracantha contracta;* ½ in.; chest black, wing chestnut.
33. *Strongylium tenuicolle;* ½ in.; dark brown.

15. BARK BEETLES.

The **Cistelidæ** are found on flowers in autumn. Their grubs are said to reside in rotten wood.
The **Lagriidæ** have soft, leathery wings and bodies, and are found on flowers. Their larvæ feed on dead oak leaves.
The **Melandryidæ** carry their heads inclined forward, and live under bark or on fungi. Their grubs feed in rotten oak stumps.
The **Pythidæ** resemble somewhat the Tenebrionidæ, and live under stones or bark. They are supposed to feed on grubs of other insects.



CISTELIDÆ.

1. *Allecula nigrans;* $\frac{5}{16}$ in.; chest dark, wings light chestnut.
2. *Hymenorus pilosus;* $\frac{1}{4}$ in.; chestnut.
3. " *obscurls;* $\frac{5}{16}$ in.; "
4. " *communis;* $\frac{1}{4}$ in.; brown.
5. *Cistela brevis;* $\frac{3}{8}$ in.; dark chestnut-brown.
6. " *sericea;* $\frac{1}{4}$ in.; orange.
7. *Isomira quadristriata;* $\frac{1}{4}$ in.; chest dark brown, wing chestnut.
8. *Mycetochares binotata;* $\frac{1}{4}$ in.; chest black, wing brown with orange spots.
9. *Capnochroa fuliginosa;* $\frac{1}{2}$ in.; chestnut-brown, wing finely ribbed.
10. *Androchirus fuscipes;* $\frac{3}{8}$ in.; dull black, rough, legs reddish.

LAGRIIDÆ.— 11. *Arthromacra ænea;* $\frac{1}{2}$ in.; dark blue or green metallic shine, feeler orange.

MELANDRYIDÆ.

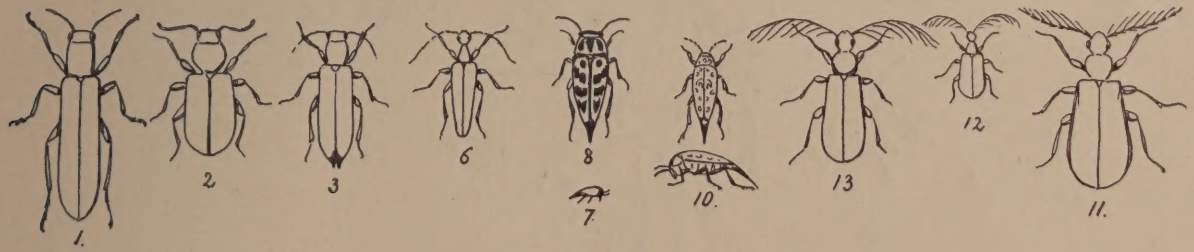
12. *Penthe obliquata;* $\frac{1}{2}$ in.; dull dark brown, rough, but finely dotted.
13. " *pimelia;* $\frac{1}{2}$ in.; black, rough, but finely dotted.
14. *Lynchroa punctata;* $\frac{1}{2}$ in.; chestnut-brown.
15. *Prothalpia undata;* $\frac{3}{16}$ in.; black, chest orange, wing buff and black.
16. *Melandrya striata;* $\frac{5}{8}$ in.; dark brown, wing ribbed.
17. *Emmesa labiata;* $\frac{7}{16}$ in.; chestnut-brown.
18. *Spilotus 4 pustulatus;* $\frac{1}{2}$ in.; black with orange spots.
19. *Serropalpus striatus;* $\frac{7}{16}$ in.; chest orange, wings brown.
20. *Hypulus liturata;* $\frac{3}{8}$ in.; rust-red with light buff marks.
21. *Marolia simulator;* $\frac{1}{4}$ in.; head black, chest gray, wing black and gray
22. *Eustrophus bicolor;* $\frac{1}{4}$ in.; dark brown.
23. *Eustrophus bifasciatus;* $\frac{3}{16}$ in.; rusty red and buff.
24. *Orchesia castanea;* $\frac{1}{4}$ in.; black.
25. " *gracilis;* $\frac{9}{16}$ in.; brown.
26. *Scotodes americanus;* $\frac{5}{16}$ in.; dark brown.
27. *Mycterus scaber;* $\frac{3}{16}$ in.; dark brown.

PYTHIDÆ.

28. *Crymodes discicollis;* ⅜ in.; black.
29. *Boros unicolor;* ½ in.; chestnut-brown.
30. *Pytho niger;* ½ in.; dark brown.
31. *Pytho americanus;* ⅝ in.; dark chestnut-brown, legs light.
32. " *strictus;* ⅝ in.; dark chestnut-brown, legs dark.
33. *Priognathus monilicornis;* ¼ in.; chestnut brown.

16. BARK BEETLES—*Continued.*

The **Œdemeridæ** are found on plants and leaves.
The **Mordellidæ** have wedge-shaped bodies, pointed behind. They live on the ash and golden-rods, jumping like fleas when disturbed.
The **Pyrochroidæ** are found under the bark of trees, and are easily recognized by their large feather-like feelers.



ŒDEMERIDÆ.

1. *Calopus angustus;* ¾ in.; buff.
2. *Ditylus cœrulus;* ½ in.; black.
3. *Nacerdes melanura;* ½ in.; head and chest orange, wing buff, point brown.
4. *Asclera ruficollis;* ¼ in.; head black, chest orange, wing black.
5. " *puncticollis;* ¼ in.; like last, but large black spot on chest.
6. *Cephaloon ungulare;* ¼ in.; head and chest orange, wing buff.

MORDELLIDÆ.

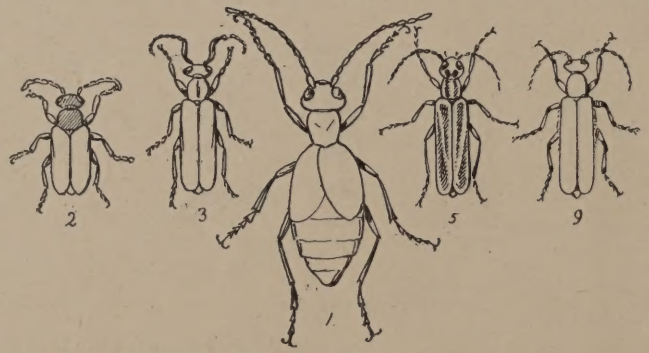
7. *Anaspis rufa;* $\frac{1}{16}$ in.; rust-red.
8. *Tomoxia bidentata;* ⅜ in.; black and gray.
9. *Mordella borealis;* ⅛ in.; black.
10. " *melæna;* ¼ in.; black.

PYROCHROIDÆ.

11. *Pyrochroa flabellata;* ⅝ in.; head, chest, and legs orange, wing brown.
12. *Schigotus cervicalis;* ¼ in.; head black, chest orange, wing brown.
13. *Dendroides canadensis;* ½ in.; head black, chest orange, wing brown.
14. " *concolor;* ½ in.; head black, chest orange, wing buff.

17. BLISTER BEETLES.

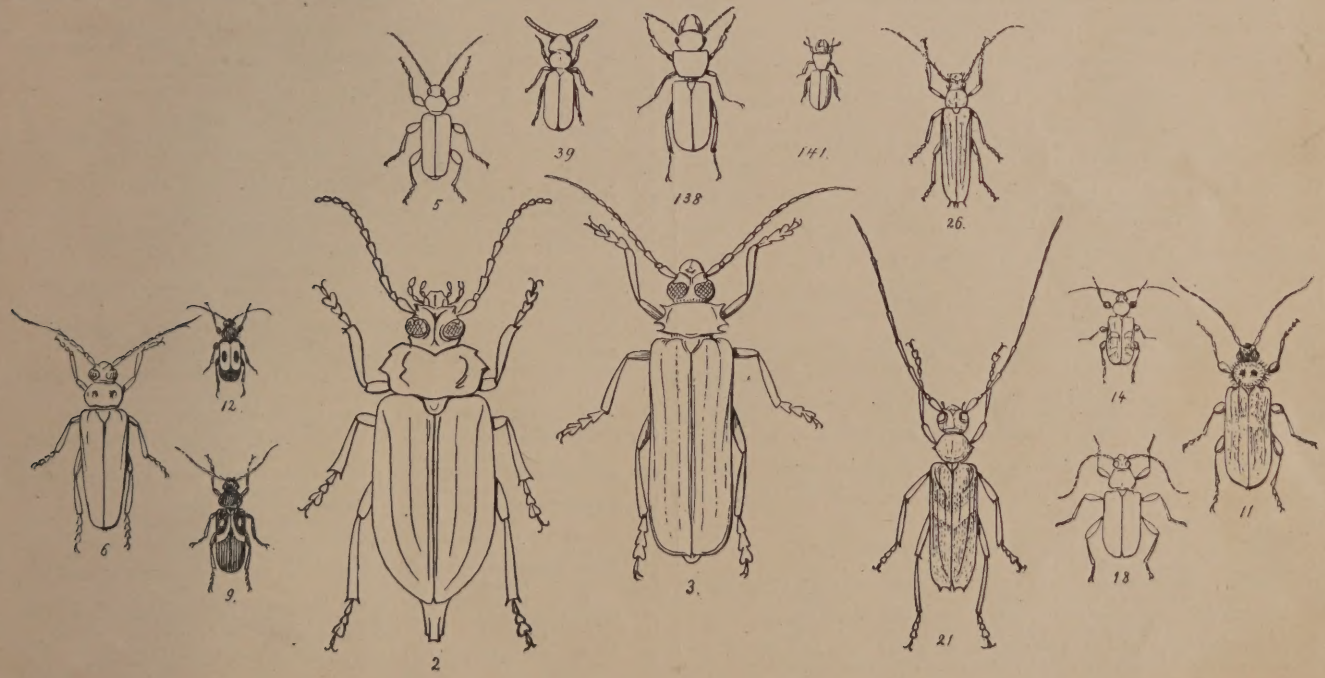
The **Meloidæ**, blister beetles, to which belong the Cantharis or Spanish fly, possess more or less the power of producing blisters. The grubs of Melœ live as parasites on bees and wasps, and devour their young. The males have a knot-like bulb in their feelers. Nos. 4 to 8 live on locust, potato, bean, golden-rod, and other plants.



1. *Melœ angusticollis;* ¾ in.; blue-black.
2. *Tricrania sanguinipennis;* ⅝ in.; chest brown, wing orange.
3. *Macrobasis unicolor;* ½ in.; ash-gray, shape like Epicauta.
4. *Epicauta trichus;* ⅝ in.; brown, black legs.
5. " *vittata;* ½ in.; head orange with black dots, chest and wing brown and buff.
6. *Epicauta lemniscata;* ⅝ in.; like 5, no dots on head.
7. " *cinerea;* ½ in.; head gray, chest and wing dark brown.
8. " *pennsylvanica;* ⅝ in.; black.
9. *Pomphopœa Sayii;* ½ in.; head black, chest gray, wings brown, legs red.
10. " *ænea;* ⅝ in.; brown, legs red.

18. BUCK BEETLES.

The **Cerambycidæ**, buck beetles, are among the most destructive of insects, and are easily recognized by their long feelers and oblong, cylindrical bodies. Their grubs are found in live or dead wood.



1. *Prionus laticollis;* 1 in.; black. (Lives in the poplar.)
2. " *pocularis;* 1½ in.; head and chest dark brown, wings dark bay.
3. *Orthosoma brunneum (unicolor);* 1¼ in.; chestnut-brown, smooth. (Bores in the pine.)
4. *Tragosoma Harrisii;* 1 in ; light chestnut, chest hairy.
5. *Asemum moestum;* ½ in.; dark brown. (In oak or grape.)
6. *Criocephalus agrestis;* ⅞ in.; dark brown and two depressions on chest.
7. *Tetropium cinnamopterum;* ½ in.; head and chest black, wings light chestnut.
8. *Smodicum cucujiforma;* ⅝ in.; head and chest orange, wings light buff.
9. *Physocnemum brevilineus;* ½ in.; head, chest, and shoulder black, lower part of wing brown with lighter marks.
10. *Rhopalopus sanguinicollis;* ⅝ in.; head and wing black, chest red, swollen legs.
11. *Hylodrupes bajulus;* ¾ in.; chestnut-brown, chest woolly with two spots, legs swollen. (In spruce or hemlock.)
12. " *ligneus;* ⅝ in ; head and chest black, wing buff with black marks.
13. *Phymatodes variabilis;* ½ in.; head black or red, chest red, wings light or dark brown.
14. " *varius;* $\frac{5}{16}$ in.; dark brown, with light marks.
15. " *amœnus;* $\frac{3}{16}$ in.; head and chest orange, wings brown.
16. " *dimidiatus;* ⅜ in.; black-brown.
17. *Merium proteys;* $\frac{9}{16}$ in.; head and chest black, woolly, wings brown.
18. *Callidium antennatum;* ½ in.; dark blue-violet, downy. (In pines or cedars.)
19. " *janthineum;* ¼ in.; head and chest black, wings brown.
20. " *æreum;* ⅜ in ; light brown.
21. *Chion garganicus;* ¾ in.; grayish-brown with yellowish band. (In nut trees.)
22. *Romaleum atomarium;* ⅜ in.; ash-gray, light woolly, marbled.
23. " *rufulum ;* 1 in.; reddish and light buff, marbled.
24. *Elaphidion mucronatum ;* ⅝ in.; ashy-brown, hairy, two thorns on end of wing.
25. " *incertum ;* ⅝ in.
26. " *villosum ;* $\frac{9}{16}$ in.; blackish and brownish gray.
27. " *parallelum ;* ½ in.; ash colored.
28. " *subpubescens ;* ⅝ in.; head and chest chestnut, wings buff.
29. " *unicolor ;* ⅜ in.; buff.
30. *Heterachtes quadrimaculata ;* ⅜ in.; head and chest orange, wings lighter with orange marks.
31. *Molorchus bimaculatus;* ¼ in.; black, with very short buff wings.
32. *Purpuricenus humeralis;* ¾ in.; blue-black, shoulder orange.
33. *Batyle saturalis ;* ⅜ in.; orange-chestnut, smooth, and polished.
34. *Stenosphenus notatus ;* ½ in.; chest yellow, dark in the middle, wing ash-brown.
35. *Cyllene robiniæ ;* ⅝ in.; black and yellow, red legs. (In locust tree.)
36. *Plagionotus speciosus;* 1 in.; black and yellow, red legs. (In maple tree.)
37. *Calloides nobilis ;* ¾ in.; chest black, wings red-brown, buff marks.
38. *Archopalus fulminans ;* ⅝ in.; dark ashy brown, marked whitish-gray.
39. *Xylotrichus colonus ;* ½ in.; brown with buff marks.
40. " *sagittatus ;* ⅝ in.; reddish-brown with buff marks.
41. " *quadrimaculatus ;* ½ in.; brown with buff marks.
42. " *undulatus ;* ⅝ in.; brown with buff marks.
43. " *anosus ;* ½ in.; grayish-brown with lighter marks.
44. *Plagithmysus suturalis ;* ⅝ in.; reddish-brown with orange mark.
45. " *capræa ;* ⅝ in.; dark brown and white.
46. " *muricatulus ;* ¼ in.; light brown.
47. " *erythrocephalus ;* ⅜ in; brown and orange.
48. *Clytanthus ruricola ;* ⅜ in.; brown with lighter mark.
49. *Cyrtophorus verucosus ;* ⅜ in.; orange with dark brown marks.
50. *Euderces picipes ;* ¼ in.; dark brown, with white spot on wing.
51. *Atimia confusa ;* $\frac{5}{16}$ in.; gray and black mottled, body short.
52. *Distenia undata ;* ¾ in.; brown and gray, long.
53. *Desmoscerus palliatus;* ¾ in.; black and cream color. (In elder.)
54. *Encyclops cæruleus ;* $\frac{5}{16}$ in.; blue-black.
55. *Rhagium lineatum ;* ⅝ in.; light and dark brown. (In pitch pine.)
56. *Toxotus vittiger ;* ⅝ in.; head and chest gray, wing brown and buff.
57. *Pachyta monticola ;* ⅜ in.; similar in color to 56, brown spots.
58. *Acmœops bivittata ;* $\frac{7}{16}$ in.; chest gray, wing buff and brown striped.
59. " *proteus ;* $\frac{5}{16}$ in.; brown.
60. " *prætensis ;* $\frac{5}{16}$ in.; chest gray, wings buff, not marked.
61. *Gaurotes cyanipennis ;* $\frac{7}{16}$ in.; chest black, wing steel-blue, legs red, shape like 58.
62. *Bellamira scallaris ;* ⅜ in.; chest dark gray, wing red-brown and buff, shaped and marks like 67.
63. *Strangalia famelica ;* ⅜ in.; orange, with black marks.
64. " *accuminata ;* ⅜ in.; chest black, wings orange-buff.
65. " *luteicornis ;* ⅜ in.; orange with dark brown marks.
66. " *bicolor ;* ⅜ in.; chest orange, wings black.
67. *Typocerus velutinus ;* ½ in.; chest black, wing red-brown and buff.
68. " *lugubris ;* ⅜ in.; black.
69. " *sinuatus ;* ½ in.; chest black, wings red-brown and buff.
70. *Leptura subhamata ;* ½ in.; chest black, wing buff and brown.
71. " *lineola ;* $\frac{5}{16}$ in.; chest black, wing buff and brown.
72. " *capitata ;* $\frac{5}{16}$ in.; head and chest red, wing black.

73. *Leptura hæmatitis;* ¼ in.; head black, chest red, wing black.
74. " *subargentata;* ¼ in.; black.
75. " *zebra;* ¼ in.; chest black, wings yellow and black.
76. " *cordifera;* ½ in.; chest black, wing buff and brown.
77. " *sexmaculata;* ⅜ in.; chest black, wing buff and black.
78. " *nigrella;* ¾ in.; black.
79. " *canadensis;* ½ in.; black and orange.
80. " *erythroptera;* ¼ in.; chest black, hairy, wing plain buff,
81. " *rubrica* · ½ in.; chest black, hairy, wing plain buff.
82. " *circumdata;* $\frac{5}{16}$ in.; chest black, hairy, wing plain buff.
83. " *vagans;* ⅜ in.; chest black, hairy, wing red-brown.
84. " *sanguinea;* ⅜ in.; chest black, hairy, wing buff, end of wing brown spot, side edge of wing black blotch.
85. " *chrysocoma;* ½ in.; chest black, hairy, wing buff, end of wing brown spot, side edge of wing black blotch.
86. " *proxima;* ½ in.; chest black, hairy, end of wing brown spot, side edge of wing black blotch.
87. " *bifons;* ½ in.; chest black, end of wing brown spot, side edge of wing black blotch.
88. " *pedalis;* ¼ in.; chest black, wing brown.
89. " *vittata;* ⅜ in.; chest black, wing buff and brown.
90. " *pubera;* ⅜ in.; black.
91. " *ruficollis;* ⅜ in.; head black, chest red, wing brown.
92. " *mutabilis;* ⅜ in.; brown.

93. *Psenocerus supernotatus;* ¼ in.; chest brown, wing buff and brown with two white dots. (In grape and currant.)
94. *Monohammus titilator;* 1½ in.; brown and gray, mottled.
95. " *minor;* ¾ in.; buff and brown, marbled, and white spot on wing.
96. " *scutelatus;* ⅝ in.; dark olive-brown, white on upper corner of wings. (In white pine.)
97. " *confusor;* 1 in.; chest gray, wing buff and brown with dark spots.
98. *Dorcaschema alternatum;* ⅜ in.; chest black, wing dark brown.
99. " *nigrum;* ⅜ in.; black.
100. *Goes pulcher;* ¾ in.; buff, red-brown mark on wing.
101. " *pulverulentus;* ¾ in.; gray, orange mark, chest not toothed.
102. *Acanthoderes quadrigibbus;* ½ in.; gray-brown with white spot and brown marks.
103. " *decipiens;* ½ in.; buff-gray, brown marks.
104. *Leptostylus aculiferus;* ⅜ in.; gray and brown marks.
105. " *biustus;* ¼ in.; buff.
106. " *macula;* ⅜ in.; buff and light buff, mottled.
107. *Liopus variegatus;* ⅜ in.; ash gray, dark brown marks.
108. " *alpha;* ¼ in.; grayish buff.
109. " *cinereus;* ¼ in.; orange.
110. *Dectes spinosus;* ⅜ in.; gray, less wide than 107.
111. *Lepturges signatus;* ½ in.; buff and brown.
112. " *facetus;* ½ in.; orange.
113. *Hyperplatys aspersus;* ¼ in.; brown, mottled.
114. " *maculatus;* $\frac{3}{16}$ in.; brown, mottled.
115. *Urographis fasciata;* ½ in.; ochre-yellow with light brown marks.
116. *Graphisurus pusillus;* ½ in.; ashy gray.
117. *Pogonocherus penicellatus;* ¼ in.; ashy brown.
118. " *mixtus;* ¼ in.; buff colored bands.
119. *Ecyrus dasycerus;* ¼ in.; dark ashy brown.
120. *Saperda obliqua;* ⅝ in.; light orange, faint crossbands.
121. " *calcarata;* 1 in.; buff-gray, buff stripes on chest. (In poplar.)
122. " *candida;* ¾ in.; gray with white stripes. (The apple tree borer. In apple, pear, and mountain ash.)
123. " *cretata;* ⅝ in.; chestnut-brown with white marks.
124. " *vestita;* ¾ in.; gray with black dots. (In linden.)
125. " *discoidea;* ⅜ in.; chestnut-brown, light mark on chest.
126. " *tridentata;* ½ in.; gray-brown and rusted. (In elm.)
127. " *lateralis;* ⅜ in.; gray and buff on sides of chest and shoulder.
128. " *puncticollis;* ⅝ in.; chest white, white border on gray wing.
129. " *moesta;* ⅜ in.; chestnut-brown.
130. " *concolor;* ⅜ in.; gray with black feelers.
131. *Oberea bimaculata;* ⅝ in.; head black, chest red, wing dark brown.
132. " *Schaumii;* ½ in.; head black, chest red, wing ashy brown.

133. *Oberea ocellata;* ½ in.; head black, chest red, wing light brown, buff.
134. " *tripunctata;* ⅝ in.; head black, chest red, wing light brown. (In blackberry and raspberry.)
135. *Tetraopes canteriator;* ⅝ in.; red with black marks.
136. " *tetraophthalmus;* ½ in.; red with black dots.
137. *Amphionycha flamata;* $\frac{5}{16}$ in.; black, light edge on chest.

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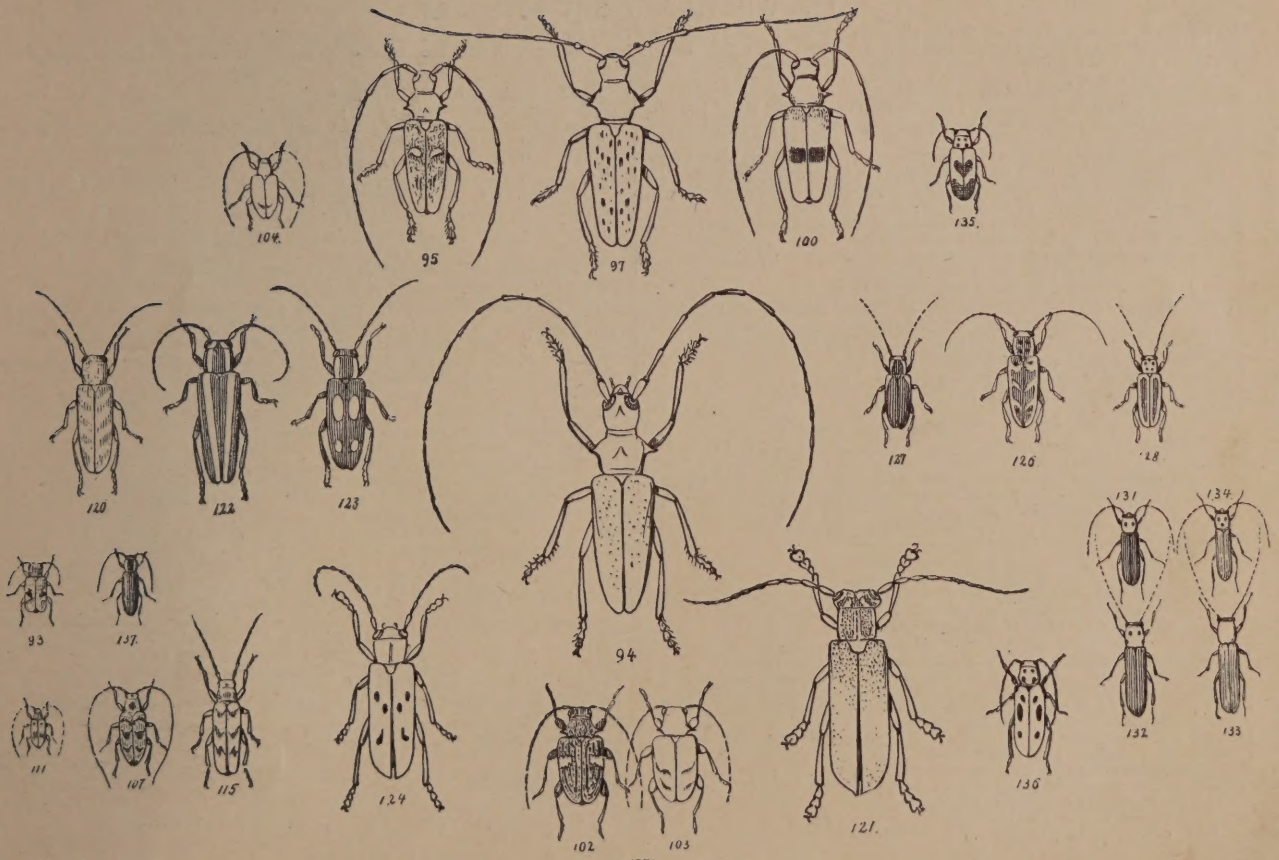
138. *Parandra brunnea;* ¾ in.; red-brown, eyes and mouth black.
139. *Cucujis clavipes;* ½ in.; red.
140. *Cutogenus rufus;* ½ in.; black, wings brown, like 139 but narrower.
141. *Trogosita virescens;* ⅜ in.; black with green shine.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19. WEEVILS. FRUIT STINGERS.

The **Curculionidæ**, weevils, or fruit stingers, are easily recognized by their snouts, with which they bore out holes in buds or young shoots, there depositing their eggs. The hatched grub eats his way to the heart of the fruit or branch, and thereby causes premature death. These beetles creep slowly but are swift in flight.

1. *Auletes ater*; ⅛ in.; blue-black.
2. *Eugnamptus angustatus*; $\frac{3}{16}$ in.; black or chest orange, wing brown.
3. *Rhynchites bicolor*; ¼ in.; red, legs black. (The rose weevil.)
4. *Pterocolus ovatus*; ⅛ in.; black.
5. *Attelabus analis*; ⅛ in.; chestnut-brown. (The oak weevil.)
6. " *bisputatulatus*; ⅛ in.; black, two red spots. (The oak weevil.)
7. " *rhois*; ¼ in.; chestnut-brown, three black lines on chest.
8. *Barynotus granulatus*; $\frac{5}{16}$ in.; dull light brown, rough.
9. *Hormorus undulatus*; ¼ in.; brown with white and black marks.
10. *Phyxelis rigidus*; $\frac{3}{16}$ in.; gray-brown, hairy.
11. *Otiorhynchus succatus*; ⅜ in.; dark ash-gray brown with light marks. (The pine weevil.)
12. " *ligneus*; $\frac{3}{16}$ in.; dark chestnut.
13. *Pandeletejus hilaris*; ⅜ in.; pale brown, gray on sides, three black lines on chest. (The white oak weevil.)
14. *Aramigus fulleri*; $\frac{5}{16}$ in.; chest yellow-brown, wing ashy brown.
15. *Aphrastus tæniatus*; $\frac{3}{16}$ in.; grayish buff.
16. *Sitones flavescens*; $\frac{3}{16}$ in.; ashy brown.
17. *Ithycerus noveboracensis*; ½ in.; ashy brown with silver marks.
18. *Apion rostrum*; ⅛ in.; black.
19. " *Sayii*; $\frac{1}{16}$ in.; black. (The wild indigo weevil.)
20. *Phytonomis nigrirostris*; ⅛ in.; gray or orange-brown.
21. *Lepyrus colon*; ¼ in.; black.
22. *Listronotus sordidus*; ¼ in.; ashy gray with light buff lines on chest.
23. " *callosus*; ⅜ in.; dark gray-brown with orange lines.
24. " *caudatus*; ⅜ in.; light gray with white lines.
25. " *latiusculus*; ¼ in.; brown, marks indistinct.
26. *Macrops sparsus*; $\frac{3}{16}$ in.; gray-brown.
27. " *humilis*; ⅜ in.; black, chest reddish.
28. " *solutus*; ⅜ in.; buff, with black marks.
29. *Pissodes strobi*; $\frac{5}{16}$ in.; dark brown, with silver-gray marks. (Causes the decay of the middle shoot of the white pine.)
30. " *affinis*; ⅜ in.; reddish-brown, with gray marks.
31. " *dubius*; ⅛ in.; brown, with similar marks as 30.
32. *Pachylobius picivorus*; ½ in.; black, with light dots in rib lines.
33. *Hylobius pales*; ½ in.; dark brown, gray dots. (Pitch pine weevil.)
34. *Hypomolix pineti*; ½ in.; dark brown, wings dotted black and white.
35. *Lixus concavus*; ⅜ in.; brown, covered with yellow dust.
36. " *musculus*; ⅜ in.; brown-gray, dusty.
37. *Cleonus calandroides*; ⅜ in.; clean gray, wing darker striped.
38. *Dorytomus laticollis*; ¼ in.; dark brown.
39. *Erycus puncticollis*; ¼ in.; black.
40. *Otidocephalus myrmex*; ¼ in.; black, shiny.
41. *Magdalis perforata*; ¼ in.; dull black.
42. " *lecontei*; ⅛ in.; dull black.
43. " *olyra*; $\frac{3}{16}$ in.; black.
44. *Magdalis salicis*; ⅛ in.; black.
45. " *armicollis*; ¼ in.; chestnut.
46. *Anthonomus 4 gibbus*; ⅛ in.; light chestnut, white stripes on chest.
47. " *scutelatus*; $\frac{1}{16}$ in.; like 46.
48. " *signatus*; $\frac{1}{16}$ in.; brown.
49. " *suturalis*; $\frac{1}{16}$ in.; brown, light on middle of wing. (Cranberry weevil.)
50. " *corvulus*; $\frac{1}{20}$ in.; black.
51. " *juniperinus*; $\frac{1}{16}$ in.; orange, with brown marks. (Red cedar weevil.)
52. *Orchestes ephippiatus*; $\frac{1}{10}$ in.; black and gray.
53. " *pallicornis*; $\frac{1}{10}$ in.; black.
54. *Conotrachelus nenuphar*; $\frac{5}{16}$ in. (The destructive plum weevil; also in apple, all kinds of plums and cherries.)
55. " *crætagi*; $\frac{3}{16}$ in.; gray. (Hawthorn weevil.)
56. " *anaglypticus*; ¼ in.; yellowish brown, light marks.
57. *Rhyssomatus palmacollis*; $\frac{3}{16}$ in.; black.
58. *Tyloderma foveolatum*; $\frac{3}{16}$ in.; dark brown with light spots.
59. *Monomychus vulpeculus*; ⅜ in.; black.
60. *Cœliodes nebulosus*; $\frac{1}{16}$ in.; black.
61. " *acephalus*; ⅛ in.; gray, legs dull red. (Grape weevil.)
62. *Ceutorhynchus septentrionalis*; ½ in.; mahogany brown and light spots.
63. *Madarus undulatus*; $\frac{3}{16}$ in.; chest red, wing black.
64. *Centrinus scutellum album*; ⅛ in.; black.
65. " *rectirostris*; $\frac{3}{16}$ in.; black.
66. *Balaninus uniformis*; ¼ in.; light buff, hairy.
67. " *nasicus*; $\frac{5}{16}$ in.; light buff, hairy. (Nut weevil.)
68. " *rectus*; ⅜ in; light buff, chest red-brown spotted.
69. *Eupsalis minuta*; ¾ in.; black with red bands on wing.
70. *Sphenophorus pertinax*; $\frac{9}{16}$ in.; dark slate-gray with darker marks.
71. " *costipennis*; ⅜ in.; black with gray stripes.
72. " *sculptilis*; $\frac{7}{16}$ in.; gray and dark gray.
73. " *melanocephalus*; ⅜ in.; dark gray and black.
74. " *placidus*; ⅜ in.; black.
75. *Calandra oryzæ*; $\frac{1}{10}$ in.; dark brown, red legs. (Corn weevil.)
76. " *remotepunctata*; $\frac{1}{10}$ in.; chest red, wing black.
77. *Cossonus platalea*; ¼ in.; black.
78. " *corticola*; $\frac{3}{16}$ in.; black.
79. " *impressifrons*; ⅛ in.; chest black, wing brown.

BRUCHIDÆ.

80. *Bruchus pisi*; $\frac{3}{16}$ in.; black and gray. (Pea weevil.)
81. " *calous*; $\frac{1}{16}$ in.; black.
82. " *obsoletus*; $\frac{1}{16}$ in.; brown.

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20. BARK BORERS.

The **Scolytidæ** and **Tomicidæ** are bark borers. They eat furrows between the bark and the wood. They are mostly small and very numerous.

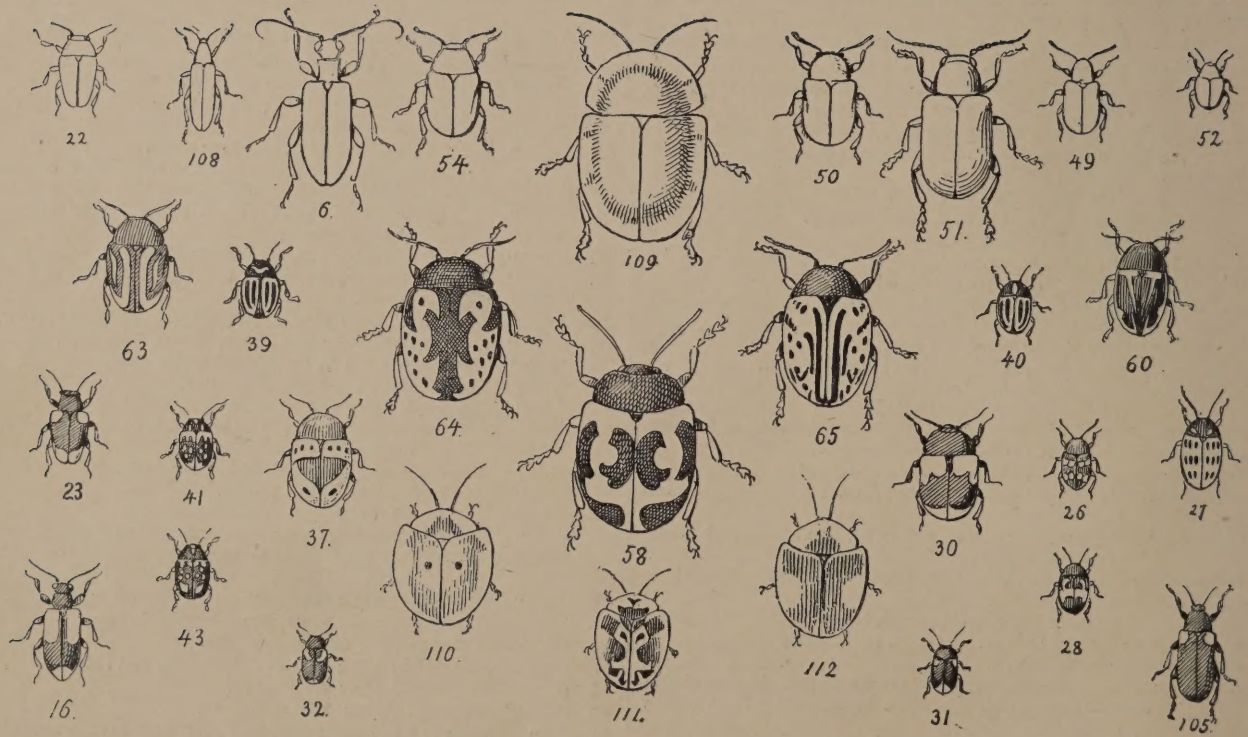
1. *Xyloterus bivittatus;* $\frac{1}{8}$ in.; dark brown with light yellow stripes.
2. " *politus;* $\frac{1}{8}$ in.; chest orange, wing buff.
3. *Xyloborus pyri;* $\frac{1}{8}$ in.; brown, with rusty legs. (The pear blight beetle.)
4. " *xylographicus;* $\frac{1}{16}$ in.; chest orange, wing brown.
5. " *cælatus;* $\frac{1}{8}$ in.; buff.
6. *Tomicus calligraphus;* $\frac{1}{4}$ in.; orange and buff.
7. " *cacographus;* $\frac{1}{8}$ in.; brown.
8. *Tomicus pini;* $\frac{1}{8}$ in.; light brown. (Pine bark borer.)
9. *Hylesinus aculeatus;* $\frac{1}{16}$ in.; gray.
10. *Dendroctonus terebrans;* $\frac{5}{16}$ in.; red. (Pitch pine bark borer.)
11. " *similis;* $\frac{1}{8}$ in.; head black, wing red.
12. *Hylastes cavernosus;* $\frac{1}{4}$ in.; black.
13. *Eurymycter fasciatus;* $\frac{1}{4}$ in.; buff and brown with white bands.
14. *Cratoparis lunatus;* $\frac{3}{16}$ in.; brown with white spots.

21. LEAF EATERS.

The **Chrysomelidæ**, leaf eaters, when appearing in great numbers are very destructive. They are nearly all thick and round in shape. They and their grubs feed on leaves.

NOTE.— All the beetles figured on page 40 are black, brown, or bronze on chest; those on page 41 are red, orange, or yellow.

1. *Donacia harrisii*; $\frac{3}{8}$ in.; green-gold.
2. " *rugifrons*; $\frac{3}{8}$ in.; face red, head and chest green-gold, wings buff.
3. " *palmata*; $\frac{3}{8}$ in.; head green-gold, chest brown, wings buff.
4. " *piscatrix*; $\frac{3}{8}$ in.; head and chest green-gold, wings brown.
5. " *tuberculata*; $\frac{1}{4}$ in.; brown.
6. " *proxima*; $\frac{3}{8}$ in.; steel-blue black.
7. " *distincta*; $\frac{5}{16}$ in.; black, metallic shining.
8. " *subtilis*; $\frac{3}{8}$ in.; black.
9. " *cuprea*; $\frac{1}{4}$ in.; coppery.
10. " *æqualis*; $\frac{5}{16}$ in.; red or green-gold.
11. " *femoralis*; $\frac{1}{4}$ in.; green-gold.
12. " *metallica*; $\frac{1}{4}$ in.; steel-blue.
13. " *flavipes*; $\frac{5}{16}$ in.; black, red legs.
14. " *Kirbyi*; $\frac{5}{16}$ in.; red-bronze, very shiny, red legs.
15. " *jucunda*; $\frac{5}{16}$ in.; black, red legs.
(All of above feed on water plants.)
16. *Orsodachna atra*; $\frac{1}{4}$ in.; chest black, wing dark brown and light spots.
17. *Syneta ferruginea*; $\frac{1}{4}$ in.; chest orange, wing buff.
18. *Lema brunnicollis*; $\frac{1}{4}$ in.; chest red, wing blue-black.
19. " *trilineata*; $\frac{5}{16}$ in.; chest red, wing yellow and black. (Feeds on potato vine.)
20. *Crioceris asparagi*; $\frac{1}{4}$ in.; chest red, wing light buff and black. (Feeds on asparagus.)
21. *Onomœa laticlavia*; $\frac{1}{4}$ in.; chest red-orange, wing buff.
22. *Coscinoptera dominicana*; $\frac{3}{16}$ in.; black.
23. *Babia 4 guttata*; $\frac{3}{16}$ in.; black, wings with four cream-colored spots.
24. *Chlamys plicata*; $\frac{1}{8}$ in.; black. (Feed on sweet fern.)
25. *Exema dispar*; $\frac{1}{16}$ in.; black.
26. *Bassareus formosus*; $\frac{1}{8}$ in.; chestnut-brown with buff dots on wing.
27. " *sulphuripennis*; $\frac{3}{16}$ in.; chest brown, wing light yellow dotted.
28. " *mammifer*; $\frac{1}{8}$ in.; chestnut-brown with cream-colored dots.
29. *Bassareus lituratus*; $\frac{1}{8}$ in.; chest orange, wing brown with white lines
30. *Cryptocephalus 4 maculatus*; $\frac{1}{4}$ in.; black with cream-colored spots.
31. " *quadruplex*; $\frac{1}{8}$ in.; chest black, wing brown and cream spots.
32. " *4 guttulus*; $\frac{1}{8}$ in.; like 31 in color.
33. " *venustus*; $\frac{3}{16}$ in.; chest orange, wing black and cream color.
34. " *gibbicollis*; $\frac{5}{16}$ in.; chest orange, wing buff with brown stripes.
35. " *trivittatus*; $\frac{1}{8}$ in.; chest orange, wing buff and brown.
36. " *incertus*; $\frac{1}{8}$ in.; chest orange, wing buff with light spots.
37. " *mutabilis*; $\frac{1}{4}$ in.; chestnut-brown and cream color.
38. " *Schreibersii*; $\frac{1}{8}$ in.; chest orange, wing buff.
39. *Pachybrachys litigiosus*; $\frac{1}{8}$ in.; black and cream color.
40. " *othonus*; $\frac{1}{8}$ in.; like 39 in color.
41. " *picturatus*; $\frac{1}{8}$ in.; like 39.
42. " *trinotatus*; $\frac{3}{16}$ in.; three light dots on chest, wing plain black.
43. " *luridus*; $\frac{1}{8}$ in.; black and cream color.
44. " *atonarius*; $\frac{1}{16}$ in.; brown.
45. " *hepaticus*; $\frac{1}{16}$ in.; chestnut-brown.
46. " *subfasciatus*; $\frac{1}{16}$ in.; chest black, wing chestnut-brown.
47. *Xanthonia 10 notata*; $\frac{1}{8}$ in.; chest orange, wing chestnut and cream color.
48. " *villosula*; $\frac{1}{8}$ in.; chest orange, wing cream color.
49. *Adoxus vitis*; $\frac{3}{16}$ in.; chest black, wing chestnut-brown.
50. *Glyptocelis hirtus*; $\frac{1}{4}$ in.; dark brown, hairy.
51. *Chrysochus auratus*; $\frac{3}{8}$ in.; brilliant blue, green and red-gold.
52. *Chrysodina globosa*; $\frac{1}{8}$ in.; shiny black.
53. *Colapsis prætexta*; $\frac{3}{16}$ in.; chestnut-brown.
54. " *flavosa*; $\frac{1}{4}$ in.; chest dark blue-gold, wing dark green-gold.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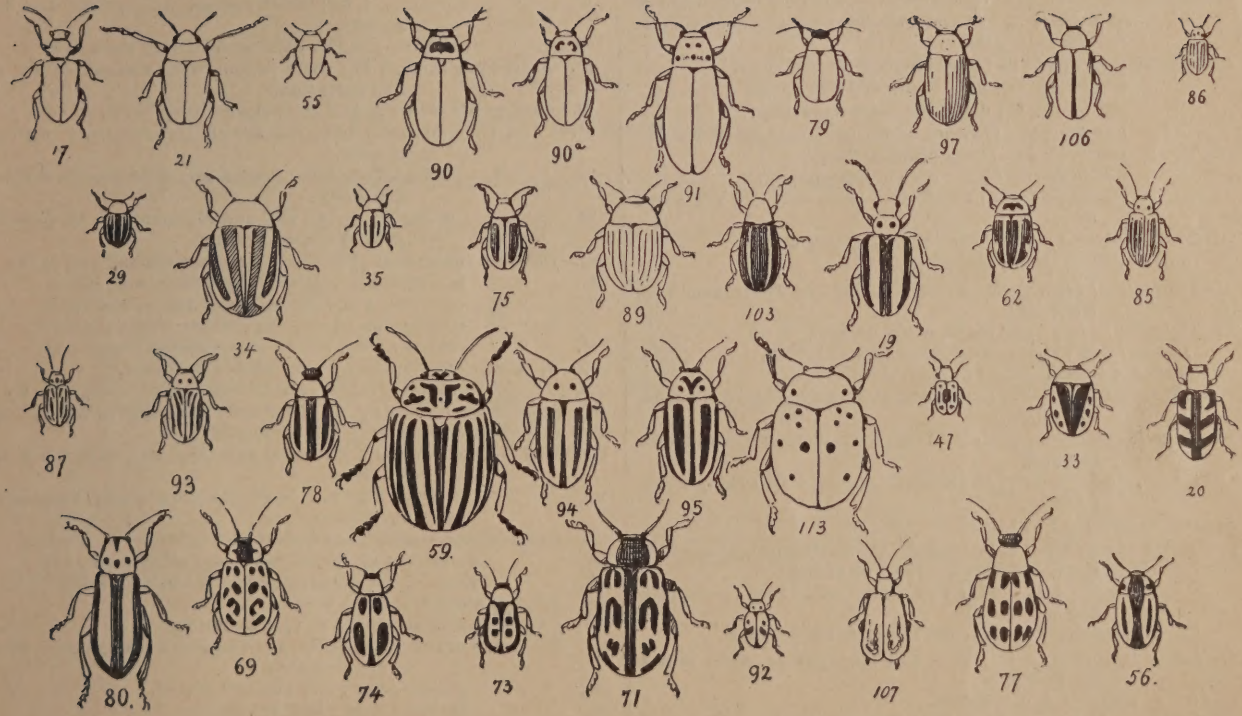
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55. *Colapsis convexa*; $\frac{1}{8}$ in.; steel-blue. *Col. flavida*; $\frac{1}{8}$ in.; chest orange, wing buff.
56. *Prasocuris varipes*; $\frac{1}{8}$ in.; brown and cream colored.
57. " *obliquata*; $\frac{3}{16}$ in.; black and cream colored; shape like 56.
58. *Doryphora clivicollis*; $\frac{7}{16}$ in.; chest black, wing dark brown and orange.
59. " *10 lineata*; $\frac{7}{16}$ in.; chest orange with cream and black. (Feeds on potato.)
60. *Chrysomela suturalis*; $\frac{1}{4}$ in.; dark brown and cream color.
61. " *similis* $\frac{3}{16}$ in.; light brown and cream color.
62. " *elegans*; $\frac{3}{16}$ in; dark brown and cream color.
63. " *lunata*; $\frac{1}{4}$ in.; chestnut-brown and cream color.
64. " *scallaris*; $\frac{3}{8}$ in.; dark brown and buff.
65. " *philadelphica*; $\frac{3}{8}$ in.; dark brown and buff.
66. " *bigsbyana*; $\frac{1}{4}$ in.; like 65, only three lines and very small dots.
67. *Gastroidea polygoni*; $\frac{3}{16}$ in.; chest red, wing blue-black.
68. " *cyanea*; $\frac{3}{16}$ in.; blue-black.
69. *Lina lapponica*; $\frac{1}{4}$ in.; chest black bordered yellow, wing orange with black dots.
70. *Lina tremulæ*; $\frac{3}{8}$ in.; chest black, wings orange.
71. " *scripta*; $\frac{3}{8}$ in.; chest orange, wing buff and black.
72. *Phyllodecta vulgatissima*; $\frac{1}{8}$ in.; dark violet-bronze.
73. *Cerotoma caminea*; $\frac{3}{16}$ in.; head black, chest orange-red, wing black and yellow.
74. *Phyllobrotica decorata*; $\frac{1}{4}$ in.; head black, chest orange, wing brown and buff.
75. " *discoidea*; $\frac{3}{16}$ in.; head black, chest orange, wing brown and buff.
76. *Luperus meraca*; $\frac{3}{16}$ in.; black.
77. *Diabrotica 12 punctata*; $\frac{5}{16}$ in.; head black, chest orange, wing yellow and black dotted. (Feeds on dahlia.)
78. " *vittata*; $\frac{1}{4}$ in.; color like 77, striped. (Feeds on squash and cucumber.)
79. " *atripennis*; $\frac{3}{16}$ in.; color like 77, wing plain buff.
80. *Trirhabda tomentosa*; $\frac{3}{8}$ in.; head and chest orange, wing yellow and brown.
81. " *virgata*; $\frac{3}{16}$ in.; like 80.
82. *Adimonia americana*; $\frac{3}{16}$ in.; light brownish-orange.
83. " *cavicollis*; $\frac{3}{16}$ in.; like 82.
84. *Galeruca tuberculata*; $\frac{1}{8}$ in.; light chestnut-brown.
85. " *sagittaria*; $\frac{3}{16}$ in.; chest yellow, wing dark brown, striped.
86. " *decora*; $\frac{1}{8}$ in.; chest orange, wing light brown.
87. " *notulata*; $\frac{1}{8}$ in.; chest orange, wing yellow and black streaks.
88. " *maritima*; $\frac{5}{16}$ in.; chest orange, wing plain buff.
89. *Blepharida rhois*; $\frac{1}{4}$ in.; chest yellow, wing chestnut-brown with fine white lines.
90. *Œdionychis vians*; $\frac{5}{16}$ in.; chest orange, wing black.
91. " *thoracia*; $\frac{3}{8}$ in.; like 90. *Œ. scripticollis*; $\frac{1}{4}$ in.; like 90 in color.
92. " *bimaculata*; $\frac{1}{8}$ in.; head black, chest orange, wing buff and brown.
93 " *scalaris*; $\frac{3}{16}$ in.; buff and black-brown. *Œ. quercata*; $\frac{3}{16}$ in.; chestnut-brown.
94. *Disonycha alternata*; $\frac{5}{16}$ in.; chest orange, wing buff and brown.
95. " *pennsylvanica*; $\frac{5}{16}$ in.; chest yellow, wing black.
96. " *glabrata*; $\frac{1}{4}$ in.; like 94, but no dots on chest part.
97. " *triangularis*; $\frac{1}{4}$ in.; chest yellow, wing dark brown.
98. " *collaris*; $\frac{1}{4}$ in.; like 97, but no dots on chest.
99. *Graptodera bimarginata*; $\frac{1}{4}$ in.; black blue-bronze.
100. " *chalybea*; $\frac{3}{16}$ in.; black violet-bronze. (Grape flea beetle.)
101. *Longitarsus rubidus*; $\frac{3}{16}$ in.; head and chest yellow, wing light buff.
102. *Crepidodera helxines*; $\frac{1}{16}$ in.; green-gold.
103. *Microhopala vittata*; $\frac{1}{4}$ in.; head and chest red, wing black with red stripe.
104. " *xerene*; $\frac{3}{16}$ in.; head and chest black, wing orange stripe.
105. *Odontota scapularis*; $\frac{1}{4}$ in.; black with brown spot on shoulder.
106. " *dorsalis*; $\frac{1}{4}$ in.; head black, chest orange, wing buff.
107. " *rubra*; $\frac{1}{4}$ in.; orange-buff with reddish marks.
108. *Stenispa metallica*; $\frac{1}{4}$ in.; blue-black.
109. *Physonota unipunctata*; $\frac{1}{2}$ in.; light chestnut.
110. *Coptocycla aurichalcea*; $\frac{5}{16}$ in.; light buff with silvery shine. (Feeds on morning glory.)
111. " *guttata*; $\frac{1}{4}$ in.; buff and dark brown.
112. " *clavata*; $\frac{5}{16}$ in.; buff and chestnut.
113. *Chelymorpha argus*; $\frac{3}{8}$ in.; orange-red and black dots.

22. MOSS BEETLES.

The **Erotylidæ** are found in moss and fungi, and have but few representatives in New England.

1. *Languria mozardi;* ¼ in.; black, chest red.
2. " *gracilis;* ⅜ in.; black-brown, chest red and black.
3. " *inornata;* ¼ in.; black.
4. *Megalodacne hero;* ¾ in.; black and orange-red.
5. *Megalodacne fasciata;* ½ in.; like 4, wings ribbed.
6. *Mycotretus sanguinipennis;* ⅛ in.; black and red.
7. *Tritoma thoracica;* ⅛ in.; head and chest ochre-yellow, wing black.

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23. LADY BIRDS.

The Coccinellidæ and Endomychidæ, lady birds, deserve to be the favorites not only for their pleasing appearance, but they are among the few useful beetles of the whole class. They lay their eggs in the nests of plant lice, which their grubs devour.

1. *Anisostricta strigata*; $\frac{1}{10}$ in.; black and flesh color.
2. *Megilla maculata*; $\frac{3}{16}$ in.; red and black.
3. *Hippodamia 5 signata*; $\frac{3}{16}$ in.; red and black.
4. " *glacialis*; $\frac{1}{4}$ in.; red and black.
5. " *convirgens*; $\frac{3}{16}$ in.; red and black.
6. " *13 punctata*; $\frac{3}{16}$ in.; " " "
7. " *parenthesis*; $\frac{1}{8}$ in.; " " "
8. *Coccinella affinis*; $\frac{1}{4}$ in.; red and black.
9. " *trifasciata*; $\frac{3}{16}$ in.; red and black
10. " *9 notata*; $\frac{1}{4}$ in.; red and black.
11. " *5 notata*; $\frac{1}{4}$ in.; " " "
12. " *monticola*; $\frac{1}{4}$ in.; " " "
13. " *tricuspis*; $\frac{3}{16}$ in.; " " "
14. *Cycloneda sanguinea*; $\frac{1}{8}$ in.; " " "
15. *Adalia frigida*; $\frac{1}{8}$ in.; red and black.
16. " *bipunctata*; $\frac{3}{16}$ in.; red and black.
17. *Harmonia picta*; $\frac{3}{16}$ in.; flesh color and black, and several small, black kinds.
18. *Anisocalvia 12 maculata*; $\frac{3}{16}$ in.; flesh color and black.
19. *Anisocalvia similis*; $\frac{1}{4}$ in.; blue black with two red marks.
20. *Myzia pullata*; $\frac{1}{4}$ in.; head and chest red-brown, wings red.
21. *Anatis 15 punctata*; $\frac{1}{4}$ in.; chest black and chestnut-brown, wings red, lighter around dots.
22. *Psyllobora 20 maculata*; $\frac{1}{16}$ in.; flesh color and black.
23. *Chilocorus bivulnerulus*; $\frac{3}{16}$ in.; blue-black with two orange dots.
24. *Hyperaspis signata*; $\frac{1}{10}$ in.; like small Chilocorus.
25. " *fimbriolata*; $\frac{1}{16}$ in.; dark blue with two light spots near tail end.
26. " *proba*; $\frac{1}{16}$ in.; dark blue with four yellow spots.
27. *Exochomus marginipennis*; $\frac{1}{8}$ in.; orange and black.
28. *Brachyacantha ursina*; $\frac{1}{8}$ in.; blue black and orange spots.
29. *Coccidula lepida*; $\frac{1}{10}$ in.; head and chest orange, wings orange and black.
30. *Epilachna borealis*; $\frac{1}{4}$ in.; orange and black.
31. *Mycetina perpulchra*; $\frac{1}{8}$ in.; black with red spots.
32. " *vittata*; $\frac{3}{16}$ in.; orange and black.
33. *Stenotarsus hispidus*; $\frac{1}{8}$ in.; orange and black.
34. *Endomychus biguttatus*; $\frac{1}{8}$ in.; orange and black.

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